COMMAND AND CONTROL OF ENGINEERS IN JOINT OPERATIONS: LESSONS LEARNED FROM HAITI

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

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Joint doctrine places the staff cognizance for engineering under J4 Logistics by emphasizing sustainment engineering functions. The Uniform Joint Task List identifies operational requirements for combat engineering functions, but no joint doctrine covers how joint force commanders should plan for or best employ combat engineering capabilities. Additionally, far more of these tasks should fall under the staff supervision of the J3 Operations than the J4 Logistics. Operation UPHOLD DEMOCRACY provides several useful examples of how the success of the engineering effort resulted from the creation of an engineer special staff element and a Joint Force Engineer Command. This study examines these OUD lessons and other alternatives to J4 sole cognizance of engineering in joint operations. Solutions recommended include: a JP3 series doctrinal publication on joint force engineer employment; engineer special staff sections for the Joint Staff and each combatant command staff; a Joint Engineer Tasking board replacing the Joint Facilities Utilization Board, Joint Civil-Military Engineering Board, and Joint Environmental Management Board; a Joint Engineer Support Plan replacing the Civil Engineering Support Plan; and assigning ENCOMS and Corps Engineers to each combatant commander to complete the engineer planning for every OPLAN tasked by the Joint Strategic Capabilities plan.

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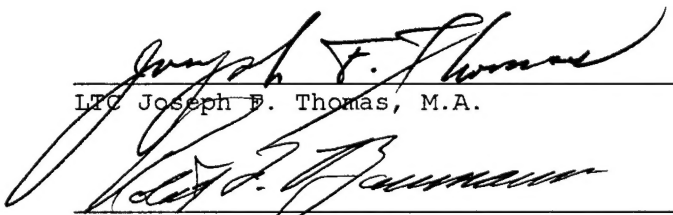

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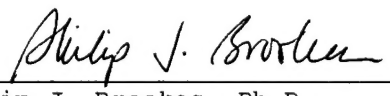

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ABSTRACT

COMMAND AND CONTROL OF ENGINEERS IN JOINT OPERATIONS: LESSONS LEARNED FROM HAITI by MAJ Christian P. M. Klinefelter, OHARNG, 134 pages.

Joint doctrine places the staff cognizance for engineering under J4 Logistics by emphasizing sustainment engineering functions. The Uniform Joint Task List identifies operational requirements for combat engineering functions, but no joint doctrine covers how joint force commanders should plan for or best employ combat engineering capabilities. Additionally, far more of these tasks should fall under the staff supervision of the J3 Operations than the J4 Logistics.

Operation UPHOLD DEMOCRACY (OUD) provides several useful examples of how the success of the engineering effort resulted from the creation of an engineer special staff element and a Joint Force Engineer Command.

This study examines these OUD lessons and other alternatives to J4 sole cognizance of engineering in joint operations. Solutions recommended include: a JP3 series doctrinal publication on joint force engineer employment; engineer special staff sections for the Joint Staff and each combatant command staff; a Joint Engineer Tasking Board replacing the Joint Facilities Utilization Board, Joint Civil-Military Engineering Board, and Joint Environmental Management Board; a Joint Engineer Support Plan replacing the Civil Engineering Support Plan; and assigning ENCOMS and Corps Engineers to each combatant commander to complete the engineer planning for every operation plan tasked by the Joint Strategic Capabilities Plan.

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Much of the credit for the completion of this project belongs to Robert F. Baumann, Ph.D., of the Combat Studies Institute and Philip J. Brookes, Ph.D., Director of Graduate Degree Programs at the United States Army Command and General Staff College for their cheerleading. They consistently provided me with indefatigable optimism, even when this journey's path looked most bleak. I am sure the college will always appreciate the tremendous asset it has in the powerfully positive attitudes these men display.

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LIST OF ACRONYMS

AAR	after action report
ACOM	United States Atlantic Command
ACSCOM	Army Component Support Command
ADC	area damage control
AMC	Army Materiel Command
ASCC	Army Service Component Commander
BDOC	Base Defense Operations Center
C2	command and control
CALL	Center for Army Lessons Learned
CASCOM	Combined Arms Support Command
CCA	Construction Contracting Agent
CEM	Contingency Engineering Management
CENTCOM	United States Central Command
CINC	Commander in Chief
CFC	Combined Forces Command, Korea
CGSC	United States Army Command and General Staff College
CJCS	Chairman of the Joint Chiefs of Staff
CJTF	Commander, Joint Task Force
CMOC	Civil-Military Operations Center
CONCAP	Contractor Civil Augmentation Program
CREST	Contingency Real Estate Team
DA	Department of the Army

DCS/LOG	Army Deputy Chief of Staff for Logistics
DCS/OPS	Army Deputy Chief of Staff for Operations
DLRO	Directorate of Logistics and Resource Operations, CGSC
DOD	Department of Defense
DOS	Department of State
DS	doctrine sponsor
EAC	echelons above corps
EIWG	Engineer Interoperability Working Group
ENCOM	Theater Engineer Command
EPT	Engineer Preparation of the Theater
EUCOM	United States European Command
FAA	Foreign Assistance Act
FM	Army Field Manual
FRAPH	Revolutionary Front for Haitian Advancement and Progress
HCA	Humanitarian and Civil Assistance
IMA	Individual Military Augmentee
IPB	Intelligence Preparation of the Battlefield
J1	Joint Staff Directorate for Manpower and Personnel
J2	Joint Staff Intelligence Directorate
J3	Joint Staff Directorate for Operations
J4	Joint Staff Directorate for Logistics
J5	Joint Staff Directorate for Strategic Plans and Policy
J6	Joint Staff Directorate for Command, Control, Communications, and Computer Systems
J7	Joint Staff Directorate for Operational Plans and Interoperability

J8	Joint Staff Directorate for Force Structure, Resources, and Assessment
JCES	Joint Contingency Engineering Section
JCMEB	Joint Civil-Military Engineering Board
JCS	Joint Chiefs of Staff
JDWP	Joint Doctrine Working Party
JEMB	Joint Environmental Management Board
JEPES	Joint Engineer Planning and Execution System
JFC	Joint Force Commander
JFEC	Joint Force Engineer Command
JFUB	Joint Facilities Utilization Board
JOPES	Joint Operations Planning and Execution System
JP	Joint Publication
JSCAP	Joint Strategic Capabilities Plan
JTF	Joint Task Force
LA	lead agent
LOC	line of communication
LOGCAP	Logistics Civil Augmentation Program (USACE)
MEDCOM	Theater Medical Command
MMAS	Master of Military Art and Science
MRC	major regional contingency
MSR	main supply route
NAVFAC	Naval Facilities Engineering Command
NCA	National Command Authority
O&M	Operations and Maintenance
OCAR	Office of the Chief of the Army Reserve
OPCON	operational control

OPLAN	operation plan
OUD	Operation UPHOLD DEMOCRACY
PACOM	United States Pacific Command
PAPIA	Port-au-Prince International Airport
PERSCOM	Theater Personnel Command
PKO	peacekeeping operation
QRF	Quick Reaction Force
SCI	Sensitive Compartmented Information
SEE	small emplacement excavator
SOP	standard operating procedures
SOUTHCOM	United States Southern Command
SST	sanitary suction truck
SUPCOM	Theater Support Command
TAACOM	Theater Army Area Command
TF	Task Force
TPFDDL	Time-Phased Force Deployment Data List
TRADOC	United States Army Training and Doctrine Command
TRANSCOM	Theater Transportation Command
UJTL	Unified Joint Task List
UN	United Nations
UNLSC	United Nations Logistic Support Command
USACE	United States Army Corps of Engineers
USAES	United States Army Engineer School
USAREUR	United States Army, Europe
USGPO	United States Government Printing Office

CHAPTER 1

INTRODUCTION

Primary Research Question

The primary question in this research is to determine what lessons can be learned from joint operational experience in Operation UPHOLD DEMOCRACY (OUD) about how best to command and control engineer forces in joint operations.

Joint doctrine places the engineer staff element under the J4 Logistics Section and does not address any recommendations for how Joint Force Commanders (JFCs) should organize the command and control of their engineer forces. These aspects of joint doctrine are encouraged and supported by the U.S. Army Combined Arms Support Command (CASCOM) at Fort Lee, Virginia, which represents the U.S. Army logistics community and by the Logistics Staff Directorate J4 of the Joint Staff. Their perspective is that the J4 should have staff cognizance over all engineering because sustainment engineering constitutes the bulk of the engineer effort in joint operations.[1] However, the U.S. Army Engineer School (USAES) at Fort Leonard Wood, Missouri, representing the U.S. Army engineer community, contends that recent experience proves that this doctrine does not allow for: (1) adequate engineer representation in the J2 Intelligence, the J3 Operations, J5 Civil Affairs, and the J7 Plans Sections; (2) appropriate emphasis on providing combat engineering support to maneuver forces; and (3) efficient consolidation of engineer

capability. USAES perceives that the command and control accommodations made by the engineers in OUD enhanced engineer success by learning lessons from the previous five years of abrogating joint doctrine in a long list of joint operations.[2]

Subordinate Research Questions

My secondary and tertiary questions evolve from the essential components of this topic: joint doctrine, U.S. military experience in OUD, and how joint doctrine can be updated. What does published joint doctrine say about the command and control of engineers and engineer employment? How does that doctrine address these subjects for the U.S. Army, other services, and within the framework of joint operations? How does that doctrine relate to the Universal Joint Task List (UJTL)? What alternative proposals exist? As the chief proponent for an alternative to exclusive J4 control, what proposal or proposals does USAES support and what is their rationale? As the chief proponents for J4 control, how do the CASCOM, the U.S. Army Deputy Chief of Staff for Logistics (DCS/LOG), and the Joint Staff J4 Logistics Directorate respond to proposals for other command and control arrangements, and what is their rationale? These questions are essential to developing the background in doctrine existing at the time that OUD was planned and executed. A detailed look at this background helps explain some of the initial engineer command and control arrangements for the operation and helps to highlight some of the gaps exposed by operational experience in Haiti.

The next step is to tell the story of the engineers in OUD. What were their successes? What were their problems? Can the causes be convincingly ascertained? How were these results affected by the

command and control, staff cognizance, and staff structuring decisions? How were the engineers task organized? How were military engineers employed? What missions were they given and who gave them those missions? What proportion of engineer effort was expended towards mobility, countermobility, and survivability functions (J3 Operations responsibilities) as opposed to sustainment and civil engineering functions (J4 Logistics responsibilities)? How was this proportion affected by the relative maturity of the theater, i.e.: the quality of that part of the infrastructure used by the military?

The capabilities of U.S. Army engineers, the engineers of the other services, and the Logistics Civil Augmentation Program (LOGCAP) are known. How well does current joint doctrine allow for the planning and control of all of these capabilities?

The Army has the most engineers and the most engineer headquarters. The recent operational experience repeatedly shows Army engineers being assigned the responsibility to command and control engineers of other services and countries theater-wide. This combines with the variance in engineer capability between the services to create resistance to the interservice consensus required to formulate new joint doctrine or to modify existing joint doctrine.[3] What is the perspective of the other services and the combatant CINCs and what is their rationale? While it is far beyond the capability of this research to field a response to recommendations made herein from each combatant commander and service headquarters, some useful indications may be drawn from existing literature and message traffic on these issues.

The final question that needs to be asked is: How are solutions implemented in joint doctrine? It is not enough to identify the gaps and deficiencies of joint doctrine, how the Army engineer community feels about them, and how that weighs against other branches such as logistics in the Army. One must go beyond that, specifically to the other services and to the combatant commands to determine how their perspectives weigh into it, and consensus must be built on the solutions in order to make a change in joint doctrine. This research will evaluate the experience in OUD for useful lessons, and make recommendations. But that is not enough. The question must be answered on how to go beyond the recommendations to achieve a result from those recommendations. This is a process not just of building consensus but also of properly staffing resulting proposals through the Joint Staff using the joint doctrine process.

Assumptions

This research is based on a few basic assumptions. First, OUD provides enough instructive examples to make a strong case for an alternative to the exclusive staff cognizance of engineers in joint operations by the J4, and alternatives to the piecemeal command and control of engineers by leaving them task organized throughout the JTF's major subordinate commands. Another assumption is that personal interviews can provide enough accuracy and substantive material to compensate for the lack of literature on so recent an operation and so current and contentious an issue in joint doctrine that it is only recently being debated.

The directions that the solutions reviewed in here will take may be affected by the outcome of this year's Presidential election, because the party which holds the White House by the end of the year will have an effect on the direction taken by defense budgets. A democrat president will probably continue to draw down the military seriously, while a republican president might be able to work with a republican congress to arrest or reverse the decline in future defense funding. This research must assume that the current trends will continue because the factors just discussed cannot be predicted.

Lastly, the results of this research should have general applicability throughout the spectrum of operations other than war, a spectrum defined in terms of variety of missions, in terms of the range of force sizes which can be committed to a miliary operation, and in terms of the variety of different service component mixes that can be assigned to a JTF. While Haiti is only one type of joint operation, a peacekeeping operation (PKO),[4] operations like this have recently been and are expected to continue to be a common post-Cold War requirement for the U.S. military.[5] Considering this and how engineers operated with the benefit of lessons learned from recent operations, OUD should be viewed as a bellwether indicator of how joint doctrine should be modified to reflect what our operational units have determined to be most effective in their actual experience.

Definition of Terms

Combat Engineering. This is defined also in JP 3-07.3 as consisting of mobility, countermobility and survivability missions.[6] Combat engineering is not defined anywhere else in joint doctrine.

Combatant Commander. A Commander in Chief (CINC) of one of the unified or specified commands established by the President. The important element of this definition is that combatant commanders command combatant commands which are unified or specified commands that are given combat missions by the President.[7]

Command and Control (C2). The exercise of authority and direction by a properly designated commander of assigned forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.[8]

Contingency. An emergency involving military forces caused by natural disasters, terrorists, subversives, or required military operations. Due to the uncertainty of the situation, contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment.[9] This definition is key to understanding the nature and scope of the work done by the Contingency Engineering Management Doctrine Subgroup, later renamed by their own decision, the Contingency Engineering Operations Doctrine Subgroup which was convened and met under the control of the Joint J4.

Countermobility. U.S. Army doctrine defines countermobility as those military activities that augment natural terrain with obstacle systems according to the commander's concept, adding depth to the battle space by attacking the enemy's ability to maneuver his forces. In other

words, actions which deny terrain for maneuver and speed of execution to the enemy. Missions include mine and obstacle emplacement and development.[10] Countermobility is not defined in joint doctrine other than by the subtasks listed under the countermobility tasks of the Universal Joint Task List (UJTL) at the tactical, operational, and strategic theater levels.[11]

General Engineering. This term is defined in FM 5-100 as that engineering that helps establish and maintain the infrastructure necessary for sustaining military operations in theater. This definition says it may include construction or repair of existing logistics, port facilities, supply routes, airfields, ports, water wells, power plants, pipelines, and may be performed by a combination of joint engineer units, civilian contractors, and host nation forces. It usually requires large amounts of construction materials. The definition also to includes area damage control (ADC) and the production of construction materials.[12] The closest term in joint doctrine to general engineering is the term, sustainment engineering, which is defined by using the same definition as FM 5-100 but adding the examples of missions including operation of electrical and sanitation utilities as well as reverse osmosis water purification units.[13]

Joint doctrine also uses the term, civil engineering. This term's definition closely resembles the definitions of general and sustainment engineering.[14] Readers must be careful not to assume that any one of these three terms includes the concept of combat engineering described above, simply because joint doctrine fails to define or address the employment of combat engineering functions.

Joint Doctrine. Joint doctrine consists of fundamental principles to guide the employment of multiservice forces in coordinated action toward a common objective. It is promulgated by the Chairman of the Joint Chiefs of Staff (CJCS) in coordination with the combatant commanders, the services, and the Joint Staff.[15] Joint doctrine is constantly evolving.[16]

Readers must consider the literature on emerging doctrine concepts as well as what is published to under the dynamic nature of joint doctrine. Joint doctrine in its current form started developing after the passage of the Goldwater-Nichols Department of Defense Reorganization Act of 1986. It has been a process which is now peaking at 50 or 60 new publications a year and is expected to decrease to about 20 new ones a year by the year 2000. The revisions of existing publications are increasing to above 50 per year now and should peak at about 100 per year peak at about the year 2000 to maintain the system.[17] Many emerging doctrine concepts exist in the literature between conception of the ideas, such as the literature which is the basis for this research, and the final publication of doctrine. Those intermediate levels of development are the subject of scrutiny here.

Joint Engineer Planning and Execution System (JEPES). The JEPES is a planning tool to develop data to assist CINC and service component staffs in determining their civil engineering support requirements. It is an automated system designed to generate their Civil Engineering Support Plans (CESPs). The JEPES is a subset of the JOPES and its primary purpose is to assist CINC and component planners in determining whether an OPLAN provides sufficient civil engineering

capabilities at the correct locations and at the appropriate times to support deployment mission accomplishment and sustain OPLAN forces JEPES specifically considers construction capability to plan civil engineering requirements. It does not deal with combat engineering functions.[18]

Joint Force. A general term applied to a force composed of significant elements of the Army, the Navy, the Marine Corps, and the Air Force, or two or more of these services operating under a single commander authorized to exercise operational control.[19]

Joint Force Commander (JFC). A general term applied to a commander authorized to exercise combatant command or operational control over a joint force.[20]

Joint Operation Planning and Execution System (JOPES). A continuously evolving system developed through the integrated enhancement of earlier planning and execution systems. It provides the foundation for conventional command and control by national and theater level commanders and their staffs. It is designed to satisfy their information needs in the conduct of joint planning and operations. JOPES is used to monitor, plan, and execute mobilization, deployment, employment, and sustainment activities associated with joint operations. JOPES helps the government decide the total requirement for military force structure.[21]

Joint Strategic Capabilities Plan (JSCP). Furnishes guidance to the CINCs and Chiefs of the services to accomplish tasks and missions based on current military capabilities. It apportions resources to the CINCs and is based on military capabilities resulting from completed

program and budget activities. The JSCP offers a coherent framework for capabilities based on military advice to the National Command Authorities (NCA). The JSCP is the document which tasks the combatant CINCs to write the key contingency operational plans which they enter into the Joint Operation Planning and Execution System (JOPES).[22]

Joint Task Force (JTF). A force composed of assigned or attached elements of the Army, the Air Force, the Navy, or the Marine Corps or two or more of these services which is constituted and so designated by the Secretary of Defense or by the Commander of a Unified Command, Subordinate Unified Command, or existing JTF. These may be established on a geographical area or functional basis when the mission has a specific limited objective and does not require overall centralized control of logistics.[23]

The distinction between a JTF and a Joint Force is that Joint Force defines all possible options for joint operations whereas JTF is restricted to meaning an operationally independent military force of medium size with a more balanced requirement for multiservice participation formed for a task of limited duration. Larger force requirements may mandate a Joint Force built from a combatant commander's staff, or the operational requirement may considered more unbalanced where mostly one service is required. A JTF is not used for a single service organization.[24] Figure 1 graphically depicts these relationships.[25]

In the case of OUD, the term JTF applies because there was relatively balanced use of forces. Although JTF 190 was mostly Army, it

did have enough Navy, Air Force, and Marine Corps participation to have been given and to have retained the nomenclature of JTF.

Logistics Civil Augmentation Program (LOGCAP). USACE is a DOD authorized Construction Contracting Agent (CCA). They have been developing, awarding, and executing construction contracts like LOGCAP in the civil works and worldwide disaster relief functions for decades. In AR 700-137, Logistics Civil Augmentation Program, dated 16 December 1985, the Army consolidated this preplanning concept for civilian contractor support.[26] The Deputy Chief of Staff/Logistics (DCS/LOG) for the Army has been the proponent and USACE has been the executor for the five contracts initiated to support operational contingencies since the inception of the program.[27] The breakout of engineering and logistics services under LOGCAP contract execution has been split about half and half.

Mobility. U.S. Army doctrine defines mobility as those actions which enable the force commander to maneuver tactical units into advantageous positions over the enemy. Missions include countermine, counter obstacle, gap crossing, combat roads and trails, and forward aviation combat engineering.[28] Mobility is not defined in joint doctrine other than by the subtasks listed under the mobility tasks of the Universal Joint Task List (UJTL) at the tactical, operational, and strategic theater levels.[29]

Operational Control (OPCON). Transferrable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. OPCON is inherent in combatant command and is the authority to perform those functions of the command or subordinate

forces involving organizing and employing commands and forces, assigning tasks, designating objectives and giving authoritative direction necessary to accomplish the mission. OPCON includes authoritative direction over all aspects (with the exceptions noted below) of military operations and joint training necessary to accomplish missions assigned to the command. OPCON should be exercised through the commanders of subordinate organizations; normally this authority is exercised through the service component commanders. OPCON normally provides full authority to organized commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. OPCON does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.[30]

Operational Level of War. The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within the theaters or areas of operations. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions and applying resources to bring about and sustain these events. These activities imply a broader dimension of time and space than do tactics. They insure the logistics and administrative support of tactical forces and provide the means by which tactical successes are exploited to achieve strategic objectives.[31]

Peacekeeping Operations (PKO). Military operations conducted with the consent of the belligerent parties to a conflict to maintain a

negotiated truce and to facilitate diplomatic resolution of a conflict between the belligerents.[32]

Staff Cognizance. Whereas the JP 0-2 definition of command and control seems to overlap into the concept of staff cognizance, the term staff cognizance in this research refers to a separate concept relating to the organization and functioning of the staff specifically.[33] Staff cognizance assigns primary responsibility to one staff element for ensuring that proper staff coordination is completed, planning is conducted, and the commander is kept well informed on all matters pertaining to a specific concern. Staff cognizance requires that the section assigned it maintain enough expertise and access to data to distill accurate conclusions and produce competent recommendations for the commander and other staff members. It also requires avoiding any selfserving bias which might shortchange the commander or the unit.

This term applies in this research because there is concurrent discussion of two concepts. One is the issue of the engineer special staff element and whether or not the staff engineers should be under the control of the J4 or another staff section, or any staff section. This is a debate about staff cognizance. The other issue is the Joint Force Engineer Command. This is a specific recommendation made by several authors, to include most recently, the research done by students at the Air Command and Staff College.[34] This is discussed as an alternative to the piecemealing out of engineer assets by task organizing them under the command of the joint forces major subordinate commands. This is a debate about command and control.

Survivability. U.S. Army doctrine defines survivability as providing concealment and protective shelter from the effects of enemy weapons. Missions include preparation and maintenance of fighting positions, protective emplacements, protected support facilities, camouflage, concealment, and deception efforts.[35] Survivability is not defined in joint doctrine other than by the subtasks listed under the survivability tasks of the Universal Joint Task List (UJTL) at the tactical and strategic theater levels.[36]

Topographic Engineering. This term is not defined in joint doctrine but is defined in U.S. Army doctrine as a component of combat engineering. Joint doctrine does list it as the sole responsibility of the Army.[37]

Limitations

During the course of this research, OUD was ongoing and transitioning control to the United Nations Mission in Haiti (UNMIH). As an operation in progress the availability of AARs from involved units was understandably scarce. This gap in the operational literature has been made up for with personal interviews, especially with the historians and Center for Army Lessons Learned (CALL) evaluators who were on the scene and with some of the commanders and operators involved in the operation itself. These personal interviews make up for the absence of the official AARs and make up for how the cursory AARs that are available are hastily prepared documents designed to highlight the positive. They tend to avoid open discussion of problems encountered and the more extreme accommodations made.

Another limitation is that joint doctrine in its current form only started evolving since 1987 and is still very actively evolving now.[38] Contentious issues such as how to integrate concepts for joint engineer employment, are still being resolved. The gap in doctrine on this issue made it harder to research and required looking at what can be referred to as emerging doctrine which is, of course, is much harder to capture and analyze because of its unofficial and often informal nature. Doctrine emerges as a reiterative process that takes many years.[39]

While one can look at existing evidence of efforts and trends developed over the last several years, all of these directions are being seriously skewed by the cutback in Defense budgets. These cutbacks affect a lot of the proposals discussed in this research because those proposals involve expensive solutions, such as new force structure, better trained engineer officers, and more officers in joint assignments. These solutions become less and less practical as the drawdown continues.

Another serious limitation is that there is very little literature on the issue of command and control of engineers in joint operations. The cause of this probably has to do with the recency of the entire development of joint doctrine. It also has to do with the contentious nature of the issue itself.

This is an issue which invites internecine branch warfare within the United States Army. CASCOM has been successful in interjecting into Advanced Warfighter Exercises for the last several years their Theater Support Command concept. This idea is popular in

Defense budget cutting times because it subsumes other theater level engineer, military police, signal, and medical commands under the logistics umbrella. This consolidation may be motivated by force structure parochial considerations. Having engineers under the staff cognizance of the logistics staff in joint doctrine indirectly affects this issue. Contention over CASCOM's Theater Support Command concept has kept much of the discussion of organizing engineers for joint operations within the Army, even though the Army is the obvious proponent for this area of joint doctrine because the Army has the preponderance of engineers and engineer headquarters among the services.[40]

Even after the subject gets out of the bounds of U.S. Army discussion, it is difficult to motivate the other services. Considering how engineers in the Air Force and the Navy cannot support a plane in the air or a ship at sea, they are accustomed to having the engineers work for the logistics effort and provide sustainment engineering support. The Marine Corps has combat engineer battalions organic to their infantry divisions and has engineer support battalions organic to the force service support groups. In amphibious operations, the two are very rarely close enough in time and space for one to augment the other so the Marines do not recognize an issue to discuss. The result is that it is difficult to have a meaningful interservice discussion.[41]

The Joint Staff J4 has convened the Contingency Engineering Operations Doctrine Subgroup. They published minutes for their meeting in December 1995. They had another meeting at the end of January and beginning of February 1996, and the documents produced from those

discussions have yet to be published because they are still being argued.[42] The result has been that the literature on the issues of command and control and staff cognizance of engineers in joint operations has been stifled and is sparse at best. The solution for this was to seek a number of interviews with key players and access to their working notes. This was only possible from the engineer side. The working notes and the internal thoughts, the motivations, the direction, the rationale of the logistics side of this issue were not available to the author other than several phone conversations with engineer staff assigned to the Joint J4.[43]

Delimitations

OUD was a large complex operation with significant special operations, psychological operations, military police, and logistics missions.[44] This research restricted itself to focusing on the engineer aspects of this military history and its associated doctrine.

The engineer doctrine in each of the services is well developed, albeit focused towards the specific needs of each service and not very accommodating for joint doctrine. U.S. Army engineering doctrine is an exception among the services in that it has been rewritten to accommodate the concepts of joint, multinational, and interagency engineering, operational level engineer support, contingency operations, and how Army engineers fit into the logistic support structure at the operational.[45] That exception aside, the purpose of this research is to look at joint doctrine, and emerging joint doctrine so the focus has been as much as possible on the existing joint doctrine and the efforts to modify it. This research has attempted to avoid

bogging down in service doctrine and focuses on the command and control and staff cognizance portions of joint engineer doctrine and emerging doctrine.

The final delimitation is that this research only looks at our experience in OUD for instructive examples because the author feels that the engineer employment history there incorporated lessons learned from the last five years of joint contingency engineering experience.

Significance of Study

Joint doctrine adequately covers the issue of sustainment engineering and its integration into joint operations. Joint doctrine all but ignores combat engineering although it clearly has operational level implications. The literature addressing the subject of how to fill these gaps in joint doctrine is understandably sparse given the political competition between the Army's branches, and between the services, over the funding and force structure implications that currently discussed solutions to this issue will have. The Joint Staff J4 dismissed Colonel Davis's work as a parochial polemic which simply pushes a Cold War mentality based on what they call the "sixth component syndrome" where the engineers operate as a separate service without adequate integration into the jointness of the operation.[46] This research aspires to provide the literature with an analysis which concentrates on the operational and strategic level tasks identified in the CJCSM 3500.04, Universal Joint Task List (UJTL), dated 15 May 1995, yet is sensitive to the defense downsizing environment and the concerns of the logistics community for being able to accomplish the extensive sustainment engineering tasks on which their success depends.

Endnotes

[1]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[2]Lieutenant Colonel Robert L. Davis, Director, Tactics, Leadership, and Environment Branch, USAES, author's recorded interview at Fort Leonard Wood, MO, on 28 December 1995. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS (cited hereafter as CSI).

[3]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December 1995. Interview tape recording and author's notes on file with CSI.

[4]ACOM, Director of Joint Training (J7), CINCUSACOM Joint After Action Report (JAAR) on Operation UPHOLD DEMOCRACY (Norfolk, VA: USGPO, 29 June 1995), 2.

[5]James H. Baker, "Policy Challenges of UN Peace Operations," Parameters (Spring 1994), 94-99, reprinted by special permission in U.S. Army CGSC, C520, Military Operations Other Than War (MOOTW) (Fort Leavenworth, KS: U.S. Army Combined Arms Center, 3 January 1996), 392.

[6]Joint Chiefs of Staff, JP 3-07.3, JTTP for Peacekeeping Operations (Washington, DC: USGPO, 29 April 1994), VII-13.

[7]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), II-14, II-15, and GL-4.

[8]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), GL-4 and GL-5.

[9]Joint Chiefs of Staff, JP 1-02, The DOD Dictionary of Military and Associated Terms (Washington, DC: USGPO, 23 March 1994), 88.

[10]HQ, Department of the Army, FM 5-100, Engineer Operations (Washington, DC: USGPO, 27 February 1996), 1-9.

[11]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-43, 2-78, 2-119, 2-120.

[12]HQ, Department of the Army, FM 5-100, Engineer Operations (Washington, DC: USGPO, 27 February 1996), 1-9.

[13]Joint Chiefs of Staff, JP 3-07.3, JTTP for Peacekeeping Operations (Washington, DC: USGPO, 29 April 1994), VII-12, VII-13.

[14]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-3 to

I-5 and GL-2. A definition of the term, civil engineering, can be inferred from Table I-1, "Civil Engineering Support Tasks," but this list greatly expands beyond the definition found in the glossary to this publication.

[15]Joint Chiefs of Staff, JP 1-02, The DOD Dictionary of Military and Associated Terms (Washington, DC: USGPO, 23 March 1994), 201.

[16]Lieutenant Colonel Louis J. Sperl, doctrine writer, Corps and Division Doctrine Directorate, Fort Leavenworth, KS, personal typewritten note to author, undated [October 1995], 1. This note describes the joint doctrine process and Lieutenant Colonel's Sperl's personal experience with it.

[17]Colonel Kief Tackaberry, Joint Doctrine Division J-7, Joint Staff, Washington, DC, copy of unclassified opening briefing to Joint Doctrine Working Party session of 27-28 April 1994, "Joint Doctrine, Coin of the Realm," undated, slide 13. This briefing was attached to the personal typewritten note to the author from Lieutenant Colonel Louis J. Sperl cited above. Slide 13 is a graph titled Production vs the Assessment/Revision Process.

[18]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), II-1 to II-4.

[19]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), 201.

[20]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), 202.

[21]Joint Chiefs of Staff, JP 5-03.1, Joint Operation and Execution System, vol. 1, Planning, Policies, and Procedures (Washington, DC: USGPO, 1995), II-6.

[22]Joint Chiefs of Staff, JP 5-03.1, Joint Operation and Execution System, vol. 1, Planning, Policies, and Procedures (Washington, DC: USGPO, 1995), II-3.

[23]Joint Chiefs of Staff, JP 5-00.2, Joint Task Force Planning, Guidance, and Procedures (Washington, DC: USGPO, 1 September 1991), I-1 and I-2.

[24]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview on 4 April 1996.

[25]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, E-mail to author, Subject: Contingency Engineer Operations, dated 26 April 1996: 2. Commander Reams provided the diagram shown in Figure 1 as an enclosure to this E-mail memorandum in which he cautioned that "it is a concept slide and is NOT JOINT

DOCTRINE."

[26]HQ, Department of the Army, Army Regulation 700-137, Subject: Logistics Civil Augmentation Program, dated 16 December 1985.

[27]U.S. Army Corps of Engineers, Transatlantic Division (CETAD), Winchester, VA, Fact Sheet titled "Logistics Civil Augmentation Program (LOGCAP)," dated 8 May 1995: 1.

[28]HQ, Department of the Army, FM 5-100, Engineer Operations (Washington, DC: USGPO, 27 February 1996), 1-9.

[29]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-43, 2-77, 2-78, 2-119.

[30]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), III-8, III-9, and GL-7.

[31]HQ, Department of the Army, FM 100-5, Operations (Washington, DC: USGPO, 14 June 1993), 6-2.

[32]HQ, Department of the Army, FM 100-20, Military Operations in Low Intensity Conflict (Washington, DC: USGPO, 5 December 1990), 1-7.

[33]General Alfred M. Gray, interview by author in Toledo, OH on 18 November 1995. While the term, staff cognizance, is not specifically defined by any joint publication, it is important to this research in view of the comments given to the author by the 29th Commandant of the Marine Corps, General Alfred M. Gray, when he was interviewed last November for this research and for other MMAS research on Haiti. He made a strong point that there is a big difference between command and control and staff cognizance, and that the two should not be confused. He emphasized that staff officers have no command authority.

[34]Major Robert E. Craig, Jr., Major Rodney L. Croslen, Major Dennis L. Jasinski, Major Neil B. McElhannon, Major Mark A. Pohlmeier, and Major Douglas K. Tucker, Air Command and Staff College, Maxwell Air Force Base, AL, draft of student research paper, "Joint Combat Engineering" (filename 96-218mc.doc), dated 28 April 1996, n.p. [36].

[35]HQ, Department of the Army, FM 5-100, Engineer Operations (Washington, DC: USGPO, 27 February 1996), 1-9.

[36]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-63, 2-120.

[37]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-3 to I-5. See Table I-1, "Civil Engineering Support Tasks."

[38]Colonel Kief Tackaberry, Chief, Joint Doctrine Division J-7, Joint Staff, Washington, DC, copy of unclassified opening briefing to Joint Doctrine Working Party session of 27-28 April 1994, "Joint Doctrine, Coin of the Realm," undated, slide 13. This briefing was attached to the personal typewritten note to the author from Lieutenant Colonel Louis J. Sperl cited above. Slide 13 is a graph titled Production vs the Assessment/Revision Process.

[39]Lieutenant Colonel Louis J. Sperl, doctrine writer, Corps and Division Doctrine Directorate, Fort Leavenworth, KS, personal typewritten note to author, undated [October 1995], 1. This note describes the joint doctrine process and Lieutenant Colonel's Sperl's personal experience with it.

[40]Lieutenant Colonel Robert L. Davis, Director, Tactics, Leadership, and Environment Branch, USAES, author's recorded interview at Fort Leonard Wood, MO, on 28 December 1995. Interview tape recording and author's notes on file with CSI.

[41]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December 1995. Interview tape recording and author's notes on file with CSI.

[42]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[43]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[44]ACOM, Director of Joint Training (J7), CINCUSACOM Joint After Action Report (JAAR) on Operation UPHOLD DEMOCRACY (Norfolk, VA: USGPO, 29 June 1995), 13-29.

[45]HQ, Department of the Army, FM 5-100, Engineer Operations (Washington, DC: USGPO, 27 February 1996), chapters 4, 5, 11, and 12.

[46]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

CHAPTER 2

REVIEW OF JOINT ENGINEERING DOCTRINE

Overview

To understand what joint doctrine prescribes about the command and control of engineers in joint operations, one must begin with a search of current joint publications. One must go well beyond that, however, because joint doctrine addresses only the logistical aspects of the subject and joint doctrine is still evolving and expanding to fill its voids. Readers must also understand the process to know how efforts to fill those voids might eventually impact on joint doctrine.

The production of current joint doctrine began after the Goldwater-Nichols Department of Defense Reorganization Act of 1986 placed full responsibility for the planning and execution of joint operations on the combatant commanders and tasked the CJCS to create and manage the doctrine to support them. In 1987 the Joint Staff created the Joint Doctrine Division within the Operational Plans and Interoperability Directorate J7 to coordinate the writing and staffing of this doctrine. They defined a new joint doctrine publication hierarchy, developed a new joint doctrine process, and published these in JP 1-01 in July 1992.[1]

JP 0-2, Unified Action Armed Forces,
Dated 10 January 1995

The second of two capstone joint publications, JP 0-2, sets forth "doctrine principles and policy for reorganizing joint forces." It explains how the Joint Staff and the services support joint operations and describes how joint commands exercise their authority. The word engineering is only used in this publication in a list of those functions assigned to the staff supervision of the Logistics Division J4, of joint force staffs.[2]

JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program,
Dated 14 September 1993

JP 1-01 describes the procedures for "initiating, validating, developing, coordinating, evaluating, approving, and maintaining joint doctrine and joint tactics, techniques, and procedures (JTTP)."[3] This process is organized in the stages of project proposal, validation, development, first and second drafts, optional test publication and evaluation, final CJCS approval, and maintenance.[4]

Joint doctrine projects may be proposed in one of two ways. In the first, directors of joint staff directorates, service chiefs, combatant commanders, and their subordinate commands may submit joint doctrine or JTTP proposals by the specified message format through their chain of command to the CJCS. The Director J7 gets an analysis from the Joint Doctrine Center and staffs both documents through the Joint Staff, the services, and the combatant commands for review and comment. The Director J7 then ensures "that all relevant sources have been explored including international agreements; lessons learned files; exit and

emerging joint, combined, and service doctrine and procedures; and other sources as appropriate."[5] The second method shortens the process by allowing project proposals to be submitted only to the Director J7, who then disseminates them to members of the Joint Doctrine Working Party (JDWP) two months prior to their next semiannual meeting. The JDWP is a group of doctrine developers representing each joint staff directorate, service, and combatant command who completes the validation process by reviewing all project proposals and making final recommendations to the Director J7 for initiating joint doctrine projects.[6]

The Director J7 then recommends projects to the CJCS for initiation and must recommend a lead agent (LA) and joint staff doctrine sponsor (DS) for each. An LA is a service, combatant command, joint agency, or joint staff directorate assigned responsibility for developing, coordinating, reviewing, and maintaining a joint doctrine or a JTTP publication. "The DS coordinates all joint staff actions necessary to complete and maintain assigned joint doctrine or JTTP."[7] Both the LA and DS are essential to successful doctrine development and both must be designated in the program development directive issued by the J7 for each project approved by the CJCS.[8]

JP 1-01 also describes the hierarchal organization of joint publications. At the top of this system are two capstone publications which set forth the foundation of doctrine principles and policy which govern all joint doctrine and JTTP. In the second layer, the six keystone publications lay a similar foundation for each of six series of joint publications and JTTP. The first digit in the publication number for each keystone JP and each JP and JTTP in its series corresponds to

the number of the primary joint staff directorate which has staff cognizance over that subject matter.[9]

JP 3-0, Doctrine for Unified and Joint Operations, Dated 9 September 1993

JP 3-0 is the keystone publication for the JP 3 (Operations) series which has more publications than the other five series combined. It describes how to organize forces, plan for, and execute all aspects of joint operations.

The only mentions of engineering in JP 3-0 are by listing "mines" among many potential interdiction assets and by including "opening and maintaining LOCs [lines of communication]" with examples of how the logistic concept of the campaign plan supports the concept of the operation.[10] The latter case specifically refers the reader to JP 4-0, Doctrine for Logistic Support of Joint Operations, for more information. The five publications within the JP 3 series which address engineer employment are reviewed below.

JP 3-07.3, JTTP for Peacekeeping Operations, Dated 29 April 1994

The joint doctrine in this publication is key to this research because Operation UPHOLD DEMOCRACY (OUD) was a peacekeeping operation (PKO). OUD provides operational experience against which this doctrine's effectiveness can be judged. It addresses both logistics and engineering together in chapter 7, "Supporting Functions," where it states that logistics "includes engineering."[11] The section on engineer missions adequately describes a full range of tasks in the two broad categories of sustainment engineer missions and combat engineer missions

but downplays the requirement for combat engineers as "small."[12] This discussion presents the fullest description of military engineering capability to be found anywhere in joint doctrine, yet it is sparse and only admits to a tactical level of significance to combat engineering.

In addition, the following passage has particular significance for OUD: "Sustainment engineering support . . . must comply with Title 10, U.S.C. 401, unless support is provided under Section 551 of the Foreign Assistance Act of 1961 (22 U.S.C. 2348)."[13] This refers to the legal requirement for commanders to separate humanitarian and civil assistance (HCA) using Title 10 O&M (Operations and Maintenance) funding from Department of State (DOS) development assistance funded under Part I of the Foreign Assistance Act (FAA) and reimbursed to the Department of Defense (DOD) by Economy Act transactions (31 U.S.C. 1535) according to previous DOD-DOS agreement.[14]

JP 3-10, Doctrine for Joint Rear Area Operations, Dated 26 February 1993

Although it is listed with the JP 3 series, this publication focuses on logistics operations survivability and offers little guidance on engineer employment. It simply states that infrastructure development should focus on facility security modification and battle damage repair and emphasizes the importance of host nation support in manpower and material to accomplish these objectives. It also cautions that assistance for host nation governments to rebuild infrastructure will be based on US law. Finally it refers readers for any additional discussion of infrastructure development to see JP 4-04, Joint Doctrine for Civil Engineering Support.[15]

JP 3-10.1, JTTP for Base Defense,
Dated 15 March 1993

One of the few doctrinal publications in the JP 3 series to mention engineers, this doctrine specifically tasks engineers to perform countermobility and survivability tasks in rear area base defense. Obstacles and mines, to include scatrerable mines, are specifically mentioned as a key element of the defense plan. An engineer representative is recommended as a member of the operations element of the Base Defense Operations Center (BDOC). Area damage control (ADC) and continuous upgrading for base physical security is stressed.[16]

> ADC includes the measures taken before, during, and after hostile action or natural or accidental disasters to reduce the probability of damage and minimize its effects. Engineers perform most of these tasks. . . . Plans for base construction must consider ADC. Defenders must use fire fighting equipment and practice procedures often to maintain proficiency. Where peacetime considerations prevent construction of defensive positions, fields of fire obstacles and detailed plans for their construction should be made by appropriately trained personnel. See Appendix H, Specialized Equipment and Material.[17]

This appendix is a long list of engineer Class IV supplies and engineer equipment from hand tools through heavy equipment.

JP 3-15, Doctrine for Barriers, Obstacles and Mine Warfare, Dated 30 June 1993

This manual presents a detailed analysis of obstacle employment at the operational level. No references are made to engineers as potential contributors to this aspect of operational warfare.[18]

JP 3-57T, Joint Civil Affairs Operations,
Dated 1 October 1991

Joint Test Publication 3-57 mentions civil-military operations as a subcategory of civil affairs operations and lists engineering as one element among intelligence, medical, and public information which contribute to civil affairs success. It refers readers to JP 3-07 for further details on civil-miliary operations. In discussing civil affairs staff relationships, the doctrine does not assign any engineer tasks to the logistics division but does mention within the operations division "planning, conducting, and reporting on CA participation in Title 10 humanitarian and civic assistance programs."[19] DOS responsibilities are listed including "efficacy and costs of programs or projects undertaken to gain the understanding, acceptance, confidence, and support of the civilian population."[20] This is applicable to OUD because it explains why DOD and ACOM planners expected the DOS to provide significant funding, at least in reimbursement for initial phases of infrastructure rebuilding.

JP 4-0, Doctrine for Logistic Support of Joint Operations, Dated 25 September 1992

As the keystone pub for the JP 4 Logistics series of Joint Doctrine Publications, JP 4-0 firmly establishes civil engineering as a function of logistics. Facilities engineering and base development is listed as one of the ten major areas of combatant commander responsibility for logistic support of operations. This category encompasses base establishment, real estate acquisition and management, and facilities construction to include roads, bridges, bases, and assignment of facilities. "Engineering services" are included as a key

element of the logistic concept which is defined as the organization of capabilities and resources into an overall theater of warfare support concept. The functions and responsibilities of two key boards are detailed but simply as quoted reiterations of what appears in JP 4-04, Joint Doctrine for Civil Military Engineering Support.[21]

JP 4-04, Joint Doctrine for Civil Engineering Support, Dated 24 February 1995

This manual provides the most extensive treatments of engineer functions in joint doctrine. However, it covers only civil engineering and does not address combat engineering functions. Combatant commanders are tasked to prepare a civil engineering support plan (CESP), to develop training exercise programs, to assess the risk of engineering shortfalls on missions, to establish construction policy, and to set priorities for engineering missions. These are all general supervision and planning tasks for a headquarters.[22]

Combatant commander responsibilities towards the execution of engineer tasks are discussed in terms of validating component support requirements and prioritizing use of civil engineering support capabilities, directing the allocation of combat civil engineering forces and construction material, and tasking components for engineering mission, tasks, or projects.[23] In other words, the service components are required to plan for and bring to the theater enough engineer capability to support their portion of the joint force, while the combatant commander or JFC is responsible for adjusting for shortfalls between them and prioritizing and organizing the entire effort.

Table I-1 delineates service responsibilities to staff, organize, train, and equip civil engineering resources. Every Service is tasked with most of the list. These tasks include:

1. emergency repair of war damage to facilities
2. bed down of units and weapons systems
3. base development including lines of communications (LOC)
4. operations and maintenance of own facilities and installations
5. construction management of troop and contract work
6. limited facility denial measures
7. participation in rear area defense
8. redeployment in retrograde construction
9. combating terrorism
10. counterdrugs
11. security assistance
12. civil military operations
13. combined training
14. support US Government agencies
15. environmental protection
16. international or domestic emergencies
17. nation assistance

The exceptions are that only the Army is tasked with providing topographic support and four tasks are assigned to only three of the services. Only the Navy is not expected to provide crash rescue and fire suppression as a civil engineering support function. The Army does not provide limited decontamination from their engineers like the other services. The Air Force does not provide and maintain enemy prisoner of

war and counterintelligence facilities, and the Marine Corps does not perform real estate acquisition functions.[24]

The description of the responsibilities to each of the three service departments includes requirements to be prepared to support units outside that service component. The Department of the Army is charged to be prepared to provide military troop construction support to the Air Force overseas. The Department of the Navy is charged with general engineering support to Marine air-ground task forces (MAGTF) and military troop construction to the Air Force in those instances where Air Force contingency engineering requirements exceeds the Army and Air Force capabilities. The Department of the Air Force is charged with providing military troop engineer support to other services when other services capabilities are exceeded.[25] So while the door is kept open to interservice support on the ground during joint operations, the expectation that components must come to the theater of operations selfsufficient in all reasonably expected engineer support functions is reinforced in the command and control chapter which states "the implementation and execution of civil engineering functions remain the responsibility of the Service and the Service component commanders."[26]

The joint doctrine for planning civil-military engineering support centers on three key ingredients: the CESP, the JFUB, and the JCMEB. The CESP is prepared using the Joint Engineer Planning and Execution System (JEPES) which is a subset of JOPES. JEPES estimates facilities, construction material, and civil engineering capability requirements for theaters of war in such a manner that should standardize the estimating process across service components, combatant

commands, services, and DOD. This CESP is very comprehensive and should cover restrictions, assumptions, construction, resources, standards, management, and time-phased requirements for developing a joint theater wide prioritization list for facility use. It should address the responsibilities and interface with the contract construction agent (CCA), and it should address the intelligence and information requirements for conducting civil-military functions within the theater.[27]

A second ingredient is an optional board known as the JFUB. It is chaired by the J4 and its membership comprises representatives from components and required special activities (legal, civil affairs, civil military operation center, etc). It supports the JCMEB administratively and serves as its executive agency for taskings. It evaluates and reconciles competing component demands for real estate against the JCMEB established priorities.[28]

The JCMEB is a temporary board that gives directions to civil military engineering effort in theater by establishing policies and priorities for engineer requirements. It is also chaired by the J4. It arbitrates whatever the JFUB cannot handle and it can prepare the CESP. It coordinates what it does with the theater construction managers and refers to them those requirements which cannot be accomplished within the capability of the joint force.[29]

Another structure that the JP 4-04 identifies is the contingency engineering management cell. However, the publication does not define contingency engineering. This cell has a lot of similarities that overlap with the JFUB/JCMEB in that it formulates a construction

program, can be tasked to produce a CESP, identifies shortfalls in construction capabilities, and assesses risks, but the concept adds a few ingredients. First, it reviews host nation support agreements, tracking host nation construction, infrastructure, facilities, and the status of host nation projects. It also monitors the operational status of theater engineering forces and influences engineer construction and logistic issues. It monitors and recommends the allocation for construction assets against its own prioritizing of tasks and then recommends tasking to civil engineering units in the joint force. The publication cautions that this is to augment the staff and should not form an engineer command "stovepipe."[30]

JP 5-00.2, Joint Task Force Planning, Guidance, and Procedures, Dated 1 September 1991

This manual is unique in joint doctrine in that the contradictions over JTF staff supervision of military engineering appear in the same publication. It has an annex B which repeats verbatim a fourth place in joint doctrine the discussion of the JCMEB and JFUB.[31] Appendix E describes the general responsibilities of the JTF staff. It lists among the responsibilities of the JTF J-4, Logistics, the following:

> exercise staff supervision or cognizance over applicable military engineering matters (e.g., engineer reconnaissance and intelligence, bridge and river crossing operations, barrier operations, construction, maintenance, and base development).[32]

This is one place where the description of engineering functions to be controlled by the J4 is much more extensive and overlaps onto the mobility, countermobility, and survivability combat engineering tasks. That directly conflicts with appendix D which gives a general description of the responsibilities and organizational aspects of the

JTF J3 Operations. In its list of responsibilities, Appendix D includes "develop joint plans and exercise staff supervision or cognizance over the conduct of" civil affairs (#5), mine warfare operations (#10), disaster relief operations (#11), and most importantly, mobility, countermobility, and survivability operations (#17).[33]

CJCSM 3500.04, Universal Joint Task List, Version 2.1, Dated 15 May 1995

The Universal Joint Task List (UJTL) is defined as

> a comprehensive hierarchal listing of the tasks that can be performed by a joint military force. It serves as a common language and reference system for joint force commanders, combat developers, and trainers. It can also be useful to analysts and planners for understanding and integrating joint operations. . . . the UJTL also provides the basis for describing joint requirements, capabilities, and combat activities.[34]

The UJTL is a system which is organized into four levels. The first level is the tactical level which addresses the accomplishment of objectives of battles and engagements. The second level is the operational level which addresses accomplishment of objectives of subordinate campaigns and major operations. Above this is the strategic theater level which addresses accomplishing objectives of theater and campaign strategy. Last is the strategic national level which addresses accomplishments of objectives of national military strategy. Each of these four levels is broken down into a half dozen tasks, or task groups, and each of the task groups has about a half dozen tasks associated with it. Most of those are expanded into subtasks.[35] While it is impossible to quantify the degree of effort or the frequency of task assignment of any task grouping, task, or subtask, it is certainly at least indicative of a minimum amount of effort and probability of

task assignment that a certain function merits listing as subtask or task within this hierarchy.

Of the six task groupings included in the tactical level of the UJTL, planning for and monitoring the tasks under TA 4, Perform Combat Service Support, would obviously fall under the staff cognizance of the J4 and those under TA 6, Provide Mobility and Survivability, would naturally fall under the staff cognizance of the J3 operations.

TA 4 includes eight tasks, four of which are broken out into a plurality of subtasks. Adding up those subtasks and counting the four tasks not broken down, there is a total of 23 tasks and subtasks within TA 4. Of those, five fall under TA 4.6, Perform Civil-Military Engineering Support. They are:

1. TA 4.6.1, Perform Rear Area Restoration
2. TA 4.6.2, Perform LOC Sustainment
3. TA 4.6.3, Perform Engineer Construction Services
4. TA 4.6.4, Obtain Engineer Construction Material
5. TA 4.6.5, Supply Mobile Electric Power.[36]

Thus, five of twentythree tasks within the J4's responsibility at the tactical level are definitely sustainment engineering and logistically oriented.

Under TA 6 there are three tasks: TA 6.1, Maintain Mobility; TA 6.2, Conduct Countermobiility; and TA 6.3, Enhance Survivability. Those are broken down into fifteen subtasks of which nine are clearly engineer unit responsibilities. Those are:

1. TA 6.1.1, Overcome Barriers, Obstacles and Mines
2. TA 6.1.2, Enhance Movement

3. TA 6.2.1, Secure/Select Location of Barriers, Obstacles and Mines
4. TA 6.2.2, Emplace Barriers, Obstacles and Mines
5. TA 6.2.3, Mark Barriers, Obstacles and Mines
6. TA 6.2.4, Detonate Mines and Explosives
7. TA 6.3.1, Protect Against Combat Area Hazards
8. TA 6.3.1.1, Protect Individuals and Systems
9. TA 6.3.1.2, Remove Battlespace Hazards.[37]

All of these should obviously fall under the staff responsibility of the J3 Operations. The remaining six: Employ Operation Security; Employ Signal Security; Employ Concealment Techniques; Conduct Deception in Support of Tactical Operations; Maintain Counterreconnaissance, Security, and Readiness; and Evacuate Noncombatants from Area are generic combat responsibilities of every military unit.[38] Thus, at the tactical level specifically, the J3 Operations has staff cognizance over nine combat engineering tasks in TA 6 as compared to only five sustainment engineering tasks in TA 4 over which the J4 logistics has staff cognizance.

At the operational level the J3 would have to be concerned with the following engineer unit responsibilities under two of the tasks of OP 1, Conduct Operational Movements and Maneuver: OP 1.3 Provide Operational Mobility, and OP 1.4 Provide Operational Countermobility:

1. OP 1.3.1, Overcome Operationally Significant Barriers, Obstacles and Mines
2. OP 1.3.2, Enhance Movement of Operational Forces
3. OP 1.4.1, Employ Operational System of Obstacles[39]

Of the six operational level task groupings, only OP 4, Provide Operational Support, falls under the staff cognizance of the J4. It has seven tasks of which only one involves engineers, OP 4.6, Maintain Sustainment Bases. That task only has one subtask, OP 4.6.2, Provide Civil-Military Engineering, which concerns engineers.[40] Thus, at the operational level, the J3 has three engineer concerns while the J4 has only one.

At the strategic theater level, three of the eight task groupings concern this research. The J3 is concerned with the following combat engineering tasks under ST 1, Conduct Intratheater Strategic Deployment, Concentration, and Maneuver of Forces, and ST 6, Provide Theater Protection:

1. ST 1.4, Enhance Strategic Mobility
2. ST 1.5.1, Establish Strategic System of Barriers, Obstacles and Mines
3. ST 6.2.1, Prepare Strategically Significant Defenses
4. ST 6.2.2, Remove Strategically Significant Hazards[41]

The J4 has staff cognizance over ST 4, Sustain Theater Forces, and the only one of its 14 tasks or subtasks which concerns engineer units specifically is ST 4.4.2, Provide Civil-Military Engineering in Theater.[42] Thus, at the strategic theater level, the J3 has staff cognizance over four combat engineering tasks while the J4 has cognizance over only one sustainment engineering task. At the strategic national level there are no tasks that can be attributed in the majority to engineer unit execution.

In total the UJTL codifies 16 joint engineering tasks are J3 staff responsibilities, while it identifies only 7 joint engineering unit concerns which fall under the staff cognizance of J4. This highlights the importance of the disparity in joint doctrine which virtually ignores the 16 J3 related joint engineering tasks while it describes in detail how to plan for and execute the seven joint engineering tasks related to the J4. This disparity certainly makes it difficult to justify sole J4 staff cognizance for all joint engineering operations and having all engineer staff personnel under the direction of the J4 on the Joint Staff and the majority of the combatant command staffs.

Endnotes

[1]Colonel Kief Tackaberry, Joint Doctrine Division J-7, Joint Staff, Washington, DC, copy of unclassified opening briefing to Joint Doctrine Working Party session of 27-28 April 1994, "Joint Doctrine, Coin of the Realm," undated, slides 3, 6, and 9. This briefing was attached to the personal typewritten note to the author from Lieutenant Colonel Louis J. Sperl cited in chapter 1.

[2]Joint Chiefs of Staff, JP 0-2, Unified Action Armed Forces (Washington, DC: USGPO, 10 January 1995), IV-14.

[3]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), v.

[4]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), I-4.

[5]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), III-1.

[6]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), III-1 and III-2.

[7]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), II-3.

[8]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), C-1.

[9]Joint Chiefs of Staff, JP 1-01, Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program (Washington, DC: USGPO, 14 September 1993), IV-2.

[10]Joint Chiefs of Staff, JP 3-0, Doctrine for Joint Operations (Washington, DC: USGPO, 9 September 1993), v, III-36, IV-16.

[11]Joint Chiefs of Staff, JP 3-07.3, JTTP for Peacekeeping Operations (Washington, DC: USGPO, 29 April 1994), VII-1.

[12]Joint Chiefs of Staff, JP 3-07.3, JTTP for Peacekeeping Operations (Washington, DC: USGPO, 29 April 1994), VII-12, VII-13.

[13]Joint Chiefs of Staff, JP 3-07.3, JTTP for Peacekeeping Operations (Washington, DC: USGPO, 29 April 1994), VII-12.

[14]Joint Chiefs of Staff, JP 3-07.1, JTTP for Foreign Internal Defense (Washington, DC: USGPO, 20 December 1993), A-1 to A-15.

[15]Joint Chiefs of Staff, JP 3-10, Doctrine for Joint Rear Area Operations (Washington, DC: USGPO, 26 February 1993), VI-2 and VI-3.

[16]Joint Chiefs of Staff, JP 3-10.1, JTTP for Base Defense (Washington, DC: USGPO, 15 March 1993), IV-6, IV-13, and IV-14.

[17]Joint Chiefs of Staff, JP 3-10.1, JTTP for Base Defense (Washington, DC: USGPO, 15 March 1993), IV-15.

[18]Joint Chiefs of Staff, JP 3-15, Doctrine for Barriers, Obstacles, and Mine Warfare (Washington, DC: USGPO, 30 June 1993), I-1 to IV-20.

[19]Joint Chiefs of Staff, JP 3-57T, Joint Civil Affairs Operations (Washington, DC: USGPO, 1 October 1991), II-15, B-1, and B-2.

[20]Joint Chiefs of Staff, JP 3-57T, Joint Civil Affairs Operations (Washington, DC: USGPO, 1 October 1991), A-3.

[21]Joint Chiefs of Staff, JP 4-0, Doctrine for Logistic Support of Joint Operations (Washington, DC: USGPO, 25 September 1992), I-11, IV-4, IV-5, B-1, and B-6.

[22]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-2 and I-3.

[23]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-2 and I-3.

[24]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-3 to I-5.

[25]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), I-5 to I-7.

[26]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), III-2.

[27]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), II-1 to II-4.

[28]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), II-4 to

II-7.

[29]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), III-4.

[30]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), III-2 to III-4.

[31]Joint Chiefs of Staff, JP 5-00.2, Joint Task Force Planning, Guidance, and Procedures (Washington, DC: USGPO, 1 September 1991), E-A-3 and E-A-4.

[32]Joint Chiefs of Staff, JP 5-00.2, Joint Task Force Planning, Guidance, and Procedures (Washington, DC: USGPO, 1 September 1991), E-2.

[33]Joint Chiefs of Staff, JP 5-00.2, Joint Task Force Planning, Guidance, and Procedures (Washington, DC: USGPO, 1 September 1991), D-1 and D-2.

[34]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-1.

[35]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-1.

[36]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-114 and 2-115.

[37]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-119 and 2-120.

[38]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-121.

[39]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-78.

[40]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-91.

[41]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-43 and 2-63.

[42]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-55.

CHAPTER 3

RESEARCH METHODOLOGY

Chapter 2 was a thorough review of currently published joint engineering doctrine. This research established what this doctrine defines and prescribes. Its purpose was to establish a doctrinal paradigm against which to judge the applicability of operational observations from Operation UPHOLD DEMOCRACY (OUD) and the recommendations for joint doctrine modification made by the various agents engaged in the emerging doctrine discussion.

Another purpose for this review was to define the official process to implement any recommendations arrived at by this research. The joint doctrine modification process is formal and structured. Understanding this process is essential, because the emerging doctrine forum has taken these issues almost as far as they can go without initiating the formal joint doctrine modification process.[1]

Lastly, chapter 2 did not fully address the ongoing discussions about the control of the LOGCAP program. This research found that while that issue provided some evidence of attempts by CASCOM to subsume major DOD programs not previously under their control, the whole discussion was actually peripheral to the research questions in this document. As a result, this topic was given the summary treatment it deserved in the following chapters.

After the literature review, this research moved through four stages. Chapter 4 covered the evolution of the emerging doctrine concerning the command and control and staff cognizance of engineers in joint operations. In contrast to the emerging doctrine process described in the literature review, the process of emerging doctrine is an informal one It can be confusing and politically charged. It is executed by "iron majors" who are well meaning, enthusiastic, intelligent, and experienced field grade officers working for senior officers who have complex agenda. These agenda in this emerging doctrine were driven by branch warfare, interservice warfare, and competition for diminishing force structure and funding. These factors made this information harder to collect and the information collected a little harder to understand. The data had to be screened against an understanding of those agenda that drives their tone and content. Nonetheless, the process was methodical and proceeded according to a slipping schedule. This analysis of that process has defined the trends that the discussion seized upon. Chapter 4 identified those issues upon which there was some consensus and those issues upon which there remained a continuing reluctance and contention. Chapter 4 also identified the key players and, as much as possible, what their agenda were.

The history of the contributions made by the engineers of all services involved in OUD was the next logical step in the process and comprises chapter 5. This synopsis was restricted to a discussion of those aspects of this history which specifically applied to the command and control and staff cognizance of engineers in joint operations.

Although this was a recent operation and one whose final stages were still unfolding, the work relied heavily on those unit AARs which could be obtained and the briefing slides from a wide variety of briefings given by the engineer commands during and after the operation. Major Kelly Slaven, who was the engineer representative on the Center for Army Lessons Learned (CALL) team that went to Haiti, contributed his personal working notes and his full submission to CALL. The most important source for this work, however, was the author's personal interviews with key people involved in executing or evaluating the operation. The official reports mentioned above were produced to present a positive perspective. The author's personal interviews were more successful in drawing out critical observations.

The analysis in chapter 6 addressed the adequacy of OUD's case study as a source of instructive lessons about joint engineer operational doctrine. The applicability of these lessons learned across the spectrum of conflict from operations other than war to war was addressed. The chapter also looked at joint doctrine from the perspective of how well it worked in OUD, what did not. The research also analyzed the recommendations made in the review of emerging joint doctrine in chapter 4. The research then stepped beyond that to determine, at least this author's perspective, of what needs fixing and why.

The final stage of this process was consummated with the specific recommendations detailed in chapter 7. These final recommendations point out and evaluate several options and directions

that future research could take to bring these issues forward to a productive and useful resolution.

Endnotes

[1]Gary Bounds, Department of the Army representative to the JOINT staff J7 Joint Doctrine Working Party, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996. Despite all the effort expended so far, when asked in April, Mr. Bounds stated that he was not aware of any joint doctrine issue being worked on which concerned the command and control and staff cognizance of engineers.

CHAPTER 4

HISTORIOGRAPHY OF EMERGING JOINT ENGINEERING DOCTRINE

The issues focused on by this research have their roots in a U.S. Army level controversy which started before Exercise Prairie Warrior 1994. Earlier that year, the Combined Arms Support Command (CASCOM) fielded a revolutionary concept spread throughout five documents: JP 4-04, Joint Doctrine for Civil Military Engineering Support; FM 100-7, Decisive Force of the Army in Theater Operations; FM 100-10, Logistics; FM 100-16, Army Operational Support; and their draft concept for support command and control at echelons above corps. The final element in their tour de force was that they arranged to have this new concept tested during Prairie Warrior 1994. Prairie Warrior is the final student exercise at the Command and General Staff College (CGSC) at Fort Leavenworth, Kansas which doubles as an Advanced Warfighter Exercise to test new and emerging concepts in doctrine. CASCOM's proposal was to change Army doctrine for support at echelons above corps to embed the theater engineer in the staff of the Army Component Support Command (ACSCOM).[1]

USAES and the 412th and 416th ENCOMs responded to these initiatives by CASCOM with strong nonconcurrences, but USAES was caught unaware.[2] The intensity of that controversy was obvious in this comment from a USAES doctrine developer:

> Not being able to dig protective positions because of 'political sensibilities' is absolutely criminal. Should a soldier/marine be killed or injured because of this stupid policy? How would one explain this one to a parent? We should protest this policy with every fiber of our being![3]

USAES then began to organize its response.[4] It organized: (1) the "creation of an operational level engineering task force focused working group," and (2) the "development of a white paper on light engineers in early entry operations."[5]

The first document produced by USAES was a white paper titled "Engineering at the Operational Level of War." This looked at the changes in national military strategy and produced certain concepts and principles for engineer employment in joint operations. Its purpose was to describe "a concept for supporting a deployed contingency force with operational-level engineer capabilities and developing only as much engineer command-and-control capability as needed."[6] The first conclusion developed is that while the engineers and logisticians share numerous interests, the tendency to regard their interests as so nearly congruent as to combine their command and control structures worked to the pronounced detriment of the theater commander's ability to execute his campaign plan. The paper developed six "rules" to encapsulate its conclusions.

Rule 1 was "Engineers work in operations channels, not logistics channels."[7] This discussion capitalized on the thought that even theater engineers have a mission to reinforce combat engineers of the forward maneuver elements, thus the senior engineer commander must ensure that all battlefield functions are planned and integrated with

the primary focus on the lead elements, not the logistics and rear elements.

Rule 2 was "The Senior Engineer Commander is a co-equal member of the theater's top council of war."[8] This focused on the existing engineer command and control headquarters (such as ENCOMs, theater army engineer brigades, corps engineer brigades, and corps engineer groups) and pointed to the size of the engineer forces required to accomplish the minimum in almost any theater of war, stressing the necessity of effective command and control for the most efficient utilization of those assets.

Rule 3 was "The engineer commander trains his staff to meet the next higher engineer headquarters responsibilities."[9] The utility of this principle was evident in Colonel Thompson's short-fuzed tasking of the 41st Engineer Battalion staff to become the JTF 190 engineer special staff element during OUD.

Rule 4 was "Work to be done always exceeds capabilities."[10] This was validated by recent joint force operational experience with the significantly growing amount of logistics civil augmentation program (LOGCAP) contracting funds used. These were expended specifically to reduce force structure requirements in theater and to satisfy all logistics and engineering requirements which could not be met by organic units in theater.

Rule 5 was "Battles always occur at the edge of a map sheet or in an area which no mapmaker thought worth the time to map."[11] Topographic capability is unique among the services to the U.S. Army and its employment is not addressed in joint doctrine.

Rule 6 was "Learn to work short-handed because that's reality."[12] The paper ended with a discussion of engineer participation in construction material purchasing, stating that logisticians could not chart the effects of substituting materials and that it was unfair to expect them to, so that engineers must work with logisticians to develop plans which reflect the availability of materials in theater.

Even as early as 29 September 1994 an existing working group at USAES, called the Council of Colonels, loaded up their agenda with joint engineering doctrine issues. They discussed the "need to quickly break the code, get in the loop" on educating the joint force, inviting Air Force, Navy, Marine Engineer Officers to their meetings, focusing on how to support both war fighters and logisticians, the need for an engineer joint capabilities handbook (which became the focus of the research done by the engineer officers in this year's class of the Air Command and Staff College) and on Force XXI operational engineer structure. The latter included such issues as split basing, using a smaller ENCOM, the joint roles and missions of the specialty functions: real estate, port construction, diving, fire fighting, well drilling, and unit structure versus civilians for LOGCAP contracting.[13]

Two other efforts started just exactly at this time which generated a flurry of documents discussing the issues focused on by this research. First, Lieutenant Colonel Robert L. Davis, now Colonel Davis, started his research as a student at the Air War College on command and control of engineers in joint operations.[14] Almost all of the XVIII Airborne Corps reports, the Operation UPHOLD DEMOCRACY (OUD) reports, and the USAES working party doctrinal development efforts were

considered by Colonel Davis.[15] Such close liaison was ensured by having a USAES doctrine developer appointed as an advisor for his research.[16]

The second parallel effort was the deployment of Colonel Jonathan S. Thompson as Commander of the 20th Engineer Brigade to OUD. In that operation he organized a JFEC and staffed his own JTF engineer special staff element while he was cooperating in this effort to formulate doctrine at USAES by submitting in-progress reviews, AARs, and papers on doctrinal recommendations under the auspices of the 20th Engineer Brigade and the XVIII Airborne Corps. USAES realized that "documenting what's going on in Haiti may support our positions. . . . 20th Engineer Brigade is once again the senior Army and the JTF Engineer."[17]

The next document that USAES produced was an outline for a white paper titled "Light Engineers During Early Entry Operations." USAES sent a copy to Colonel Thompson with a cover letter which explained that its intent was to incorporate the situational construct of TRADOC Pam 525-200-2, Early Entry Lethality and Survivability, dated 1 March 1994, and to incorporate the tenets of TRADOC Pam 525-5, Force XXI Operations, dated 1 August 1994, into a "white paper for the light engineer vision."[18] USAES tasked Colonel Thompson to produce a straw man for this white paper and the product was produced and briefed in April 1995.

While he restricted his work to early entry engineering, Colonel Thompson developed the idea of a JTF engineer cell and gave a recommended table of organization for it totaling 19 officers and 27 enlisted men.[19] He recommended the cell as a special staff section and

stated "a corps engineer section or an engineer brigade headquarters slice is the nucleus for the JTF engineer staff section."[20] He stated that the formation of the cell and its participation in an initial engineer conference at the earliest point possible in the planning would be critical to the success of early entry engineer operations.[21]

His concept required that the JTF engineer section maintain a permanent presence in the joint operations center, that it have permanent liaisons in J5 and J4, and that units within the joint force requiring engineer support route their requests though the J3 to a JTF engineer operations section collocated there. He allowed for the possibility of including the engineer staff under the J3 in smaller size engineer missions. Colonel Thompson also recommended that this JTF engineer cell be split based, locating a scaled down engineer staff with the JTF rear to coordinate engineer sustainment missions. His point was that to weight the main effort which he defined as being the forward forces controlled by J3 Operations.[22]

Colonel Thompson specified that sustainment engineering has to start on day one, that it must be planned and must not be a function that the joint force gets around to once adequate logistical capability is built up ashore. He also proposed that the early entry engineer end state should be defined prior to deployment, that it should lay the foundation for follow on operations, and that it should compliment the follow-on engineer end state.[23] This idea was reinforced by the conclusions that "real estate is at the point of the bayonet during permissive-entry operations," (which was evident during OUD) "service

contracting must be integrated into the engineer suppot plan," and "Class IV including construction materials is a TPFDD entry."[24]

Lastly, he touched on the concept of joint engineer force structure. Although he did not go so far as to propose a Joint Force Engineer Command (JFEC), he stated that

> the correct composition and timely deployment of engineer units is vital to execute the full spectrum of engineer missions in required priority of secondary importance is the maintenance that establishes habitual command, control, and support relationships.[25]

This spoke to the stringent competition for strategic mobility to get into theater and proposed a more split based approach regardless of how robust the early entry engineer requirements must be. Engineer equipment can be as heavy as tanks and infantry fighting vehicles, and as a result, the strategic mobility and the theater transportation and logistical support assets may not be available to support so robust an engineer force early on. "These constraints result in an engineer force specifically structured and resourced to accomplish the planned contingency mission."[26]

During this time, the XVIII Airborne Corps also produced an engineering annex to their JTF headquarters SOP. This expanded on the concepts in the early entry engineers white paper to cover all six phases of an operation from start to finish in a manner which accommodated the doctrine published in JP 4-04, JP 5-03.2, and Army, Air Force, and Navy engineer doctrine and regulations. What both the early entry engineer white paper and this annex had in common is that they proposed that the ideal source for staffing a joint force engineer cell is from the assistant corps engineer staff of any of the four active duty Army corps. While they created a workable joint doctrine for

adequate staff cognizance of JTF engineering, they did not address joint engineer command and control doctrine.[27]

In December, when CASCOM arranged in the scenario for Prairie Warrior 1995 that a theater Army Engineer Brigade be the theater senior engineer element and be subsumed under the ACSCOM, the USAES responded by telling the commander of the 19th Theater Army Area Command that the 411th Engineer Brigade, Theater Army would not participate in Prairie Warrior 1995 as a subordinate element of the senior support headquarters and that he would have to route all requests for engineer support of logistics through the 412th ENCOM.[28] The same day, USAES reiterated to CASCOM its concerns about the draft concept for support command and control at echelons above corps by stating the following:

> At the strategic level with combined joint operations, engineers marshal national resources under the logistics umbrella. For land warfare at the operational and tactical levels engineers and logisticians have a fundamentally different focus. Agreements we have reached on other key points, which it appears CASCOM has chosen to ignore or to resurface. . . . Understand and support the desire of the senior Army leadership to streamline and consolidate C2 structure. Sorting out those concepts and organizations that prescribe the right assortments of engineer capabilities along with just enough C2 capability as needed. Not helpful to have CASCOM working what appears to be a separate agenda.[29]

Also during December 1994, CALL published its first volume of Operation UPHOLD DEMOCRACY Initial Impressions. This initial AAR included the input from Captain Kelly Slaven, a doctrine writer from USAES who was a CALL team member. In this document he strongly applauded the use of a consolidated engineer command at the JTF level, and the establishment of an engineer staff section separate and distinct from the J4.[30]

CALL published two more volumes of their Operation UPHOLD DEMOCRACY Initial Impressions in April[31] and July[32] of 1995. These volumes did not include sections on engineer lessons learned because the USAES did not send an engineer officer with either of the CALL teams that produced these volumes. These documents do contain some engineer-related lessons but they are contained within the logistics lessons learned sections.

In 15 March 1995, the 412th ENCOM submitted a draft article for an Engineer magazine article titled "Joint Forces Engineer Command." The authors cited the trend towards increasing DOD jointness spurred by the Goldwater-Nichols Act and the negative engineer experiences during Operation PROVIDE COMFORT and in Somalia as justification for establishing a joint forces engineering command as a requirement in joint doctrine. They used Operation PROVIDE COMFORT as a positive example of a JFEC because the 18th Engineer Brigade provided command and control for Army engineers, Navy seabees, Air Force engineers, and engineers from other NATO countries. They used Somalia as a negative example because the theater command and control relationships were confusing, especially for engineers, and this made routine duties more trying than necessary. They stated that "out of frustration and desire to simplify work, weekly meetings were held with all in-country key engineers. As a result, communications flowed smoother, actions were expedited and efficiency of work improved." They concluded that "the stage is set for a joint forces engineering command (JFEC)."[33]

The thrust of this article is that the Army's ENCOM is ideally suited to be structured as a JFEC. Their rationale was that

> the ENCOM will function in a joint services environment. It will provide engineer command and control for engineer brigades and groups that provide direct support at the operational level and general support to the corps and divisions at the tactical level. In addition, the ENCOM provides staff support to the joint contingency engineering staff (JCES) and maintains an ENCOM (rear) to provide ENCOM and control for the remainder of the theater. . . . As recommended in the Operation Restore Hope Lessons Learned Report for operations requiring a large engineer effort, an engineer staff section should be established as a special staff group.[34]

They justified this approach with the statement, "a JFEC will provide the staffing for the total civil engineering support plan and engineering preparation of the theater,"[35] to imply that ENCOMs are more trained in these two processes than corps staffsThey emphasized that the U.S. Army's two ENCOMs have experience to contribute to joint force engineer command and control and have significant active duty staff structure within their headquarters even though they are U.S. Army Reserve units.[36]

In his research paper submitted to the Air War College in April 1995 titled, "Command and Control of Engineers in Joint Operations," Colonel Davis analyzed Army and joint doctrine on staff cognizance of engineers in joint operations (in contradiction to his title) and compared that against case analyses of the scenarios in Operation DESERT STORM, Operation PROVIDE COMFORT, Hurricane Andrew, Somalia, OUD in Haiti, and Exercise Prairie Warrior 1994.Colonel Davis cited these as examples of recent operations or exercises where J4 staff cognizance of engineers was proven ineffective and J3 staff cognizance or a separate engineer staff element from the Joint Force Engineer Command (JFEC), in most cases, proved to be the more effective.[37]

He cited Operation DESERT STORM where the 416th ENCOM was introduced into the operation three months after it started and helped

the JFC by providing theater-wide continuity to the management and tasking of all engineer assets in the theater. During Operation PROVIDE COMFORT, the logistics division of the combined staff (C4) had a Staff Engineer with no directive role, but the JFC chose to assign all engineer units in theater under the operational control (OPCON) of the 20th Engineer Brigade Commander who became the JTF (JTF) Engineer and established a separate engineer component with liaisons in the J3, J4, and J5 staff elements. During Hurricane Andrew the JTF Commander created an engineer special staff element using an Army active duty engineer group headquarters and augmenting them with Air Force, Navy, and Marine Corps personnel under the direction of a U.S. Army Corps of Engineers (USACE) Division Engineer. This arrangement allowed the JTF Commander to efficiently direct USACE and multiservice engineer efforts in what was an engineer intensive operation.[38]

In Operation RESTORE HOPE in Somalia the joint doctrine was followed and the J4 controlled the JTF Engineer and his staff. However, the AAR recommended that for large operations a JTF Engineer be a special staff element in the future and that for smaller operations, the engineer staff be placed within the J3 and not the J4.[39] Later in Somalia, during Operation CONTINUE HOPE, a very small U.S. engineer contingent was placed under the United Nations Logistics Support Command (UNLSC) but could not perform its mission requirements because UNLSC did not understand its capabilities or limitations and did not provide it with the assets it needed to perform its mission. After the ambush of the U.S. Army Rangers, the President created JTF/Somalia in October 1993. Engineer planning and command and control was fragmented. An

engineer battalion was part of the Quick Reaction Force (QRF) of the JTF and its commander was the senior engineer in theater. The UN had an engineer staff element and the JTF had an engineer staff element. No one coordinated the total engineer effort across the theater to include coalition engineers. However, the commander of the QRF engineer battalion held weekly coordination meetings with all engineer elements in theater and by this nondoctrinal ad hoc method, was able to align engineer effort throughout the theater in terms of establishing priorities, allocating scarce materials and determining which missions would be accomplished by civilian contractors.[40]

In Exercise Prairie Warrior 1995, the 416th ENCOM participated, and the key issue in their AAR was that the initial organization placing the engineer staff under the CENTCOM J4 was not practical. They convinced the Commander in Chief (CINC) of CENTCOM to realign the engineer staff element under the J3, increasing their effectiveness.[41]

Colonel Davis also quickly reviews OUD emphasizing how much engineer effective improved after JTF 190 formed an engineer special staff element and consolidated engineer command under a single headquarters with TF CASTLE.[42]

Colonel Davis concluded that sole staff cognizance by the J4 was unworkable, that sole staff cognizance by the J3 was an improvement, but that the optimum arrangement was an engineer special staff element for JTF staffs. Colonel Davis argued that success in the engineer operations of each of the examples he analyzed was achieved by the supreme resourcefulness of the U.S. Army engineer officers who were in

charge of theater engineer operations in each case and was achieved in spite of joint doctrine, not because of it. He stated that

> in those instances where joint doctrine was followed the participants strenuously argued the inefficiencies of the arrangement after the mission was complete. In the remainder of the operations, engineers opted for either subordination under the J3 or established themselves as a separate special staff.[43]

Colonel Davis argued that Army engineer officers are the natural choice for leading engineer efforts in joint operations because they are trained in versatility in that they are routinely responsible for both combat engineering and civil engineering tasks. He faulted the resourcefulness of military engineers for hiding the severity of this problem because they routinely produce commendable results despite inefficient command and control and staff cognizance relationships.[44]

He commended the Department of the Air Force for removing their civil engineering staff from the Logistics Directorate on their Air Staff and establishing them as a separate staff element and said that he hopes that they will reassess joint doctrine to support USAES efforts to affect Army and joint doctrine.[45] He reasoned that "the solution is to analyze existing requirements and challenge doctrine as necessary to ensure our war fighting commanders are provided with the most lethal, versatile, and effective engineer force."[46]

Colonel Robert L. Davis is now assigned to USAES and is their appointed action officer for the task of creating a body of joint doctrine which adequately addresses joint operational employment of engineer effort. In his personal interviews with the author, he related the latest developments in the emergence of this doctrine and surfaced the idea of creating a new primary staff section for engineering. His

rationale was that a primary engineer staff was warranted because engineer systems affect every element in the theater as much as do personnel administration, military intelligence, logistics, and communications. He did not offer any further analysis of this idea.[47]

Also during April, Prairie Warrior 1995 was conducted and shortly thereafter the Joint Venture Combined Arms Assessment Team published their detailed AAR. While this report validated a theater support command concept because it functioned well in reconstituting the theater,[48] it also validated the independent senior theater engineer command and control structure because it functioned well in combat.[49] The report documented that the scenario showed many more requirements for engineer bridge companies than available bridging units and that the MSR maintenance in the COMMZ alone drove a minimum requirement for 24 combat heavy engineer battalions where only 2 battalions were available.[50] The report concluded that

> the goal is <u>not</u> to create 'purple' engineer units, but rather to enhance joint war fighting by efficiently managing scarce resources. . . . While the CINC has a great deal of flexibility in how he organizes joint command, the engineering mission invariably generates a great deal of missed opportunities until centralized control is established. A joint force engineer command is a concept whose time has come.[51]

In July and August 1995, USAES disseminated two straw men for proposed joint publications on joint engineering which discussed principles, battlefield functions, roles, and the outline for a structure of a joint engineer staff which would function as a special staff element. These documents address each service's capabilities and all of the reserve component's special engineering functions, such as construction contracting agent (CCA), the contingency real estate teams

(CREST), and LOGCAP.[52] The documents stressed the need to establish theater standards early, define end states, and guard against mission creep.[53]

As a result of all these actions and input, the Joint Staff J4 chartered the Engineer Interoperability Subgroup for Development of Contingency Engineering Management Doctrine in late August 1995. This charter recognized an "over arching need for joint contingency engineering doctrine." Its charge was to "not assume to prescribe set solutions but offer procedural and organizational options for the combatant commanders who must retain flexibility in the structure and functioning of their engineer staffs."[54]

The charter established a goal of staffing recommended joint doctrine on contingency engineering before the end of April 1996. Phase I was to produce an outline, gather reference material, and have members write assigned sections of a draft before convening the working session of the Engineering Interoperability Working Group (EIWG) in early October. Phase II envisioned packaging of a first rough draft by assembling the work of that session and giving it to the members to revise during October and November so that before the full meeting of the EIWG the second week in December there would be a draft to staff to the full membership. Phase III envisioned the meeting in early December followed by revisions and preparation of a revised draft for the Joint Engineer Doctrine Conference scheduled for 30 January to 3 February. Phase IV was to be the preparation of a final draft for formal staffing by 19 April 1996 so that Phase V would follow that for an undetermined

period of time and involved routing the proposal throughout the Joint Staff, Services, and CINCs for comment.[55]

During September, Colonel Thompson sent a letter to all the members of the EIWG to fulfill a requirement he had promised for developing a half dozen specific issues at the request of the Contingency Engineering Management Conference hosted by PACOM and held on June 23 through 25, 1995. Most of it was a restatement of the work that he had produced in his early entry engineer white paper draft and the annex to the XVIII Airborne Corps SOP.[56]

One interesting recommendation he made was to change the name for this group of issues from contingency engineering management to contingency engineering operations. This idea was designed to reduce the confusion between the terms civil engineering and combat engineering. He felt that the term contingency engineering management implied including in civil engineering the functions of mobility, counter mobility and survivability battlefield operating systems. The term contingency engineering operations was designed to key on the alignment of engineer functions under the staff cognizance of the J3 operations and also to advance the concept of centralizing control of both civil engineering and combat engineering functions under one joint engineer special staff element.[57] Colonel Thompson explains that

> joint doctrine must grow and be modified to reflect the significant differences between echelons of joint staffs. JTFs are as different from CINC staffs as an Army brigade or division is from a theater Army. The exact same doctrinal precepts functions and organizational logic cannot be applied to all echelons. In a JTF the responsibility for combat engineering and civil engineering must be integrated and elevated to JTF staff level through a JTF engineer section subordinate to either the J3 or the joint staff director.[58]

The October meeting of the EIWG did not occur. Instead, the Joint Staff J4 pushed back the entire schedule and reduced the objectives to a meeting in December, a joint service white paper, JP outline, and briefing to the Joint Engineer Doctrine Conference. The J4 also published a membership roster organizing the group into four components. The first component was the EIWG itself chaired by the J4. This group included representatives from the Department of the Army Engineer, the Air Force Civil Engineer, Headquarters Marine Corps Logistics, and OPNAV N446. The OPNAV representative was assigned as the point of contact within the Navy so that the Navy could be the lead agent for what was referred to as the Contingency Engineering Management (CEM) Doctrine Initiative. The second element was the CINC Engineer Advisory Panel which consisted of representatives from the five geographic combatant command staffs. The CEM Doctrine Working Group was the third element which included members from USAES, the 412th and 416th ENCOMs, and the major engineer commands throughout the services. The last and fourth element did not have names identified, but they expected to have an expert resource panel representing each of the services and major engineer commands.[59]

Meanwhile, over the strong written objections of USAES, 412th ENCOM,[60] 416th ENCOM,[61] and the Chief of its own Force Development Division,[62] the Office of the Chief of the Army Reserve (OCAR) was convinced by CASCOM in October to test the theater support command (SUPCOM) concept in exercises. OCAR saw the proposal as a win-win situation for the USAR because no reserve force structure would be lost by converting theater army area commands (TAACOMs) to SUPCOMs. The

concept required the other echelons above corps (EAC) commands, such as the MEDCOM, TRANSCOM, PERSCOM and Finance Group to provide only modules to the new SUPCOM. This followed the split-based employment concept which reduces joint force footprints, (i.e., number of personnel in theater) to conserve support requirements and decrease force vulnerability. This would allow the USAR to retain most of its force structure in the EAC commands and yet promote the flexibility of them providing only tailor made plug-in modules for most major regional contingencies (MRC). The SUPCOM concept received mixed reviews.

> Some of these EAC commands support the concept, some do not, but the concept is not an "all or nothing." It will work, for example if the ENCOM does not provide a cell to the SUPCOM. . . . We in CASCOM anticipate the concept to be approved (though most bets are for the ENCOM to remain a separate command under the ASCC). This is one way to move the USAR into Force XXI.[63]

This represented a major step for CASCOM towards modifying Army doctrine to subsume major theater support functions under a logistics headquarters, but USAES would not concur in this doctrinal modification.

In November 1995, the 310th TAACOM complained to DLRO at CGSC that USAES would not support the testing of new concepts within the scenario for Prairie Warrior 1996, because USAES refused to allow the ENCOM to provide a modular plug to the theater support. The 310th complained that the whole purpose of an Advanced Warfighter Exercise was to experiment with bold new ideas like these new EAC logistic concepts to see how they work and recommended that the CGSC and the TAACOM resort to getting a decision from the OCAR to circumvent the reluctance of the USAES to cooperate.[64] DLRO replied that

> back in early September CASCOM was notified of the engineer community's intent to have a separate ENCOM during Prairie Warrior 96. Today CASCOM has not formally opposed this position. It is now

> pretty much taken for granted here that the ENCOM will be a separate command. Just like last year I feel it will ultimately require general officer involvement to get this position changed.[65]

The CEM Doctrine Working Group met on the 8th and 9th of December 1995 in Alexandria, Virginia, at the Hoffman Building NAVFAC offices. Their working notes show that they agreed to change the name of their issue to contingency engineering operations, defining that term as the provision of "leadership in the integration and coordination of the overall engineer effort" in joint operations.[66]

In their discussions to define the scope of the problem, they reached consensus on a number of points: (1) that component engineer planning does not address all JTF operations; (2) that this leaves a gap at the JTF level in joint doctrine because the component doctrine covers combat engineering fairly well and the joint doctrine covers the combatant commander perspective but joint doctrine does not cover the operational perspective of the JTF; (3) that the current doctrine is too logistics focused and that creates problems because the J4 is already overloaded and incapable of devoting adequate attention or providing adequate advocacy of the engineer effort; (4) that there are no consistent theater construction standards across the services; and (5) that joint pubs are not integrated.[67]

They resolved to find a comprehensive concept for integrating all facets of joint engineer operations to include common terms across service lines, the importance of the combatant commander, various JTF engineer staffing alternatives, and the roles and missions of service engineer organizations, CCAs, host nation support, other JTF staff sections, international engineers, and the UN. They agreed that this

contingency engineering operations concept must: (1) integrate the existing sustainment engineering joint doctrine to add combat engineering's battlefield operating systems and discussions of environmental, utilities, power, disaster recovery, and topographic functions; (2) restore an operational focus to the joint doctrine's perspective of the joint force engineer effort; (3) create enough uniformity across components to allow units and staffs to train the way they are going to fight; (4) emphasize the need for JTF engineer training; and (5) clarify engineer command and control.[68]

The working group's final recommendation was to create a new joint engineer publication in the JP 3 series and to revise all related joint pubs to reflect its doctrine. The mechanism they chose to accomplish this was to draft a white paper based on this meeting, to staff it through all the services and engineer organizations in preparation for the Joint Engineer Doctrine Conference at the end of January, and from there to issue a white paper to all the combatant commanders in order to enlist one or more of those combatant commanders as a sponsor for this doctrine change. What was missing from this discussion were recommendations for a Joint Staff doctrine sponsor to coordinate the process and a lead agent to draft the doctrine itself.[69]

One new concept addressed but not developed was the idea of the engineer as a primary staff section (J-X). The idea being that the engineer cell would not just be a special staff element but would be a primary staff section coequal with the J1 through J7 (possibly be a J8 directorate on the JTF staff). This would allow the engineer to have

the same status as the intelligence and signal functions currently do on JTF staffs.[70]

As a result of the December conference, the working group produced an outline for a white paper. In their outline, the working group concluded that:

> When employed in a coordinated manner, service engineer forces are capable of a broad spectrum of capabilities that can be a significant force multiplier for the Combatant Commander. However, in light of recent experience, it is clear that potential exists to leverage these capabilities more effectively.
>
> Significant gaps in current doctrine hamper engineer staff action and as a result, also inhibit the effective control and synchronized employment of engineer resources by the Joint Force Commander in a way that best supports the achievement of his intent. This is particularly true within the areas of combat, environmental and topographic engineering.[71]

From that skeleton,some members of the group wrote a five page white paper with six enclosures to prepare participants for the Joint Engineering Conference the end of January and the Joint Engineer Doctrine Conference at the beginning of February. In their white paper, the working group borrowed heavily from I Corps and XVIII Airborne Corps SOPs and guidance documents to provide six enclosures which covered:

1. JTF headquarters structure
2. JTF Engineer staff structure functions
3. checklist for engineer involvement in crisis action planning
4. checklist for transition from peacetime component structure to JTF planning and execution
5. summary of the compositions and functions of engineering related military boards[72]

They stated that JP 4-04 was deficient in not providing joint engineer staff organization and structure and recommended establishing a

standard for JTF engineer staff, organization, functions, and responsibilities. They recommended establishing a JTF Engineer as

> the principle advisor to the CJTF on all engineering matters. He exercises staff supervision of combat and civil engineer units and operations, and over activities in the areas of civil engineering, topographical mapping, charting and geodesy, real estate, and environmental protection. He coordinates and chairs the Joint Facilities Utilization Board (JFUB), the Joint Military Environmental Board, and the Joint Civil-Military Engineering Board.[73]

They recommended augmenting the JTF Engineer's staff with a contingency engineering management (JTFCEM) cell made up of reserve engineer officers from each of the services and civilian and military augmentees who could deploy on short notice from the two DOD CCAs, the US Army Corps of Engineers (USACE), and the Naval Facilities Engineering Command (NAVFAC). They recommended augmentees as well from the USACE LOGCAP program and from the correlating NAVFAC program called CONCAP. They recommended that the JTF Engineer's staff cell provide topographic personnel in the J2, LOGCAP personnel in the J4 contracting cell, engineer plan section in the J5 Joint Planning Group, and a JTF engineer operations cell in the J3 Joint Operations Center.[74]

They expanded the definition of the functions of the engineer staff beyond that found in JP 4-04 by adding responsibility for planning and coordinating combat engineer operations (specifically mobility, countermobility, and survivability support), adding the prioritizing of available resources between combat and construction requirements, and adding the concept that

> service component engineers will not necessarily be tied to uniquely supporting their respective services, capabilities and resources will be prioritized to provide the most effective support to the JTF. Engineer priorities must be decided by the CJTF.[75]

They closed their paper by stressing three key engineer staff functions. The first was the earliest possible and the most integrated involvement in crisis action planning. The second was the actual chairing of the military boards in joint doctrine (JFUB, JCMEB, and JEMB). And lastly, they recommended that joint doctrine specify standard engineer report formats for use at the JTF level.[76]

Unfortunately the work of the EIWG was not able to achieve enough interservice consensus at the Joint Engineer Doctrine Conference to produce progress towards modifying joint doctrine covering these issues. Even as late as April 1996, the Joint Staff J4, which chaired the conference and the previous working group meeting, stated that no meeting notes, papers, or joint white paper was produced nor was expected to be produced in their future as a result of the contentious nature of the debate at the doctrine conference and as a result of the conceptual gridlock between the engineer and logistics communities across all the services. The J4 complained that the engineer position was mired in a cold war perspective he called the "6th component syndrome" which requires engineers to operate as a large and independent major subordinate command under the joint force commander.

The Joint Staff's position was that it does not matter where the engineer staff is located on the JTF staff. Whether the engineer staff is in the J4 or the J3 or the J5 or all of them, it believed that the current doctrine of keeping the engineer staff under the J4 was fully functional and that engineers could make all the staff coordination they required from that arrangement. The J4 cautioned that both Haiti and Somalia were poor case studies from which to draw lessons

learned about optimum joint engineer command and control and staff cognizance because those two operations were too U.S. Army dominated to be considered truly joint. He cautioned against modifying doctrine to insert organizational prescriptions because this level of inflexibility would guarantee failure.

The J4 believed that counting UJTL tasks did not give an accurate enough representation of percent of effort involved, and he dismissed the UJTL as a document written by operators with their blinders on. It is worth noting that Captain Slaven explained that the UJTL and its predecessor, the TRADOC Blueprint of the Battlefield, were written by a board of retired flag rank officers from all the services on contract to TRADOC and the Joint Doctrine Center.

The J4 stated it was more pertinent that in every operation cited by this research and in Operation DESERT STORM, Operation JOINT ENDEAVOR, and Operation SEA SIGNAL, the number of engineers per capita by component were the same across each component within each operation. This practice established the rule that each service component is responsible for bringing enough capability to support its own force structure in theater regardless of what capabilities are unique to its service.[77]

The last literature published on these issues was a student research paper, entitled "Joint Combat Engineering," prepared by six Air Force engineer officers and submitted in April 1996 to the Directorate of Research at the Air Command and Staff College. These officers had $2500 of travel expense funding and were able to attend some of the conferences and meetings and working groups mentioned in this research.

They did a literature review of service engineer doctrine and joint engineer doctrine. They analyzed three case studies of low intensity contingency deployments to Somalia, Haiti, and Bosnia and they prepared a comprehensive DOD combat engineering primer.

Their research identified a gap in operational level joint engineer doctrine. They found that there were few unique capabilities among combat engineers throughout the services, thus implying that their recommendations should find DOD-wide applicability. They strongly endorsed the JTF engineer command concept and concluded that the lack of joint engineer doctrine and the lack of interservice and joint engineer training were the key impediments to achieving its implementation. They created an extensive document detailing the organization and capabilities of every engineering unit in DOD and offered it as a tool to improve the ability of each service's engineers to understand the potential of the engineers of other services in joint operations.[78] This report is significant because it presents a strong endorsement for the consolidation of engineer command and control in joint operations from another service's engineer officers.

Endnotes

[1]James E. B. Stewart, USAES doctrine developer, E-mail to William Adams, USAES Director for Directorate and Combat Developments, Fort Leonard Wood, MO, Subject: Theater Engineering in Distress, dated 30 August 1994: 1.

[2]James E. B. Stewart, USAES doctrine developer, E-mail to William Adams, USAES Director for Directorate and Combat Developments, Fort Leonard Wood, MO, Subject: Theater Engineering in Distress, dated 30 August 1994: 1. Mr. Stewart had responded to a question from the 416th ENCOM in Chicago on what the USAES had done to influence the draft JP 4-04. He explained his response to his supervisor by stating that he "told him ugly truth that we are seldom asked to review joint doctrine, don't know what's being staffed, don't see theater OPLANs, and have done little to correct an obvious deficiency."

[3]James E. B. Stewart, USAES doctrine developer, E-mail to Mr. Vernon Lowrey, Analysis Division Chief, USAES Directorate of Evaluations and Standards, Fort Leonard Wood, MO, Subject: re: Haiti, dated 26 September 1994: 1.

[4]James E. B. Stewart, E-mail dated 30 August 1994 cited above: 1. Mr. Stewart recommended the formation of "a permanent standing working group" chartered by the USAES commandant.

[5]James E. B. Stewart, USAES doctrine developer, E-mail to Lieutenant Colonel Scott A. Fernald, Battle Lab Division Chief, USAES Directorate of Combat Developments, Fort Leonard Wood, MO, Subject: DCG Guidance-- Engr Council, dated 25 October 1994: 1.

[6]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 1.

[7]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 3.

[8]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 4.

[9]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 7.

[10]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 8.

[11]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 10.

[12]USAES ATSE-CBS-S, Fort Leonard Wood, MO, white paper titled "Engineering at the Operational Level of War," dated 17 June 1994: 12.

[13]USAES, Fort Leonard Wood, MO, Council of Colonels conference agendum titled "OPERATIONAL (EAC) ENGINEER BREAKOUT SESSION ISSUES," dated 29 September 1994, Colonel Robert L. Davis personal research files, Fort Leonard Wood, MO, 1-2.

[14]Lieutenant Colonel Robert L. Davis, Air War College Professional Writing Program Proposal, Maxwell Air Force Base, AL, Title: Theater Engineer Support, dated 14 October 1994: 1.

[15]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 29-31.

[16]Colonel Phillip R. Anderson, USAES Assistant Commandant, memorandum for Lieutenant Colonel Robert L. Davis, Subject: Air War College Special Study Topic, dated 12 October 1994: 1.

[17]James E. B. Stewart, E-mail dated 26 September 1994 cited above: 1.

[18]Major General Joseph N. Ballard, USAES Commandant, memorandum for Colonel Jonathan S. Thompson, 20th Engineer Brigade Commander, Fort Bragg, NC, Subject: White Paper Light Engineers During Early Operations, dated 19 September 1994: 1.

[19]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 2-2 and C-1.

[20]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 1-1 and 1-6.

[21]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 1-4.

[22]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 1-6.

[23]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 1-7 and 1-8.

[24]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 3-2 and 3-4.

[25]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 2-2.

[26]XVIII Airborne Corps Engineer, Fort Bragg, NC, white paper titled "Early Entry Engineers, The Prelude to Engineer Force XXI Concepts," dated April 1995: 2-2.

[27]XVIII Airborne Corps, Fort Bragg, NC, "JTF HQS SOP," undated, 4-L-1 to 4-L-9 and 4-L-5-1 to 4-L-5-3.

[28]Major General Joseph N. Ballard, USAES Commandant, E-mail to Commander, 19th TAACOM, Des Moines, IA, Subject: Echelons Above Corps Engineer Structure, dated 27 December 1994: 1.

[29]Major General Joseph M. Ballard, USAES Commandant, E-mail to Major General Robison, CASCOM Commanding General, Fort Lee, VA, Subject: Engineer Focus - - Prairie Warrior '95, dated 27 December 1994: 1.

[30]U.S. Army Combined Arms Command, Center for Army Lessons Learned, Operation Uphold Democracy: Initial Impressions, vol. I, Haiti D-20 to D+40 (Fort Leavenworth, KS: Center for Army Lessons Learned, December 1994), vii and 179.

[31]U.S. Army Combined Arms Command, Center for Army Lessons Learned, Operation Uphold Democracy: Initial Impressions, vol. II, Haiti D-20 to D+150 (Fort Leavenworth, KS: Center for Army Lessons Learned, April 1995), 72 to 74 and 85 to 87.

[32]U.S. Army Combined Arms Command, Center for Army Lessons Learned, Operation Uphold Democracy: Initial Impressions, vol. III, Haiti The U.S. Army *and* United Nations Peacekeeping (Fort Leavenworth, KS: Center for Army Lessons Learned, July 1995), 174 to 176 and 202.

[33]Colonel Jerry L. Anderson, Assistant Chief of Staff Engineering, and Colonel James H. Robinson, Assistant Chief of Staff Intelligence, 412th Engineer Command, Vicksburg, MS, "JOINT FORCES ENGINEER COMMAND," unpublished draft of article for Engineer, dated 15 March 1995: 3.

[34]Anderson and Robinson, 4.

[35]Anderson and Robinson, 6.

[36]Anderson and Robinson, 6.

[37]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 1.

[38]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 9 and 10.

[39]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 12-14.

[40]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 14-15.

[41]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 17-18.

[42]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 16-17.

[43]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 20.

[44]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 25.

[45]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 26.

[46]Lieutenant Colonel Robert L. Davis, "Command and Control of Engineers in Joint Operations" (student research report, Air War College, Maxwell Air Force Base, AL, April 1995), 8.

[47]Lieutenant Colonel Robert L. Davis, Director, Tactics, Leadership, and Environment Branch, USAES, author's recorded interview at Fort Leonard Wood, MO, on 28 December 1995. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS (cited hereafter as CSI).

[48]U.S. Army Combined Arms Command, Joint Venture Combined Arms Assessment Team, Prairie Warrior "95: Initial Impressions (Fort Leavenworth, KS: Center for Army Lessons Learned, 2 June 1995), 6-5.

[49]U.S. Army Combined Arms Command, Joint Venture Combined Arms Assessment Team, Prairie Warrior "95: Initial Impressions (Fort Leavenworth, KS: Center for Army Lessons Learned, 2 June 1995), 6-6, 6-32, and 6-33.

[50]U.S. Army Combined Arms Command, Joint Venture Combined Arms Assessment Team, Prairie Warrior "95: Initial Impressions (Fort Leavenworth, KS: Center for Army Lessons Learned, 2 June 1995), 32-33.

[51]U.S. Army Combined Arms Command, Joint Venture Combined Arms Assessment Team, Prairie Warrior "95: Initial Impressions (Fort Leavenworth, KS: Center for Army Lessons Learned, 2 June 1995), 33.

[52]USAES, Fort Leonard Wood, MO, proposed joint publication, JP EN, "Joint Engineering, CINC's Guide to Enginering Response," Colonel Davis personal research files, dated 20 July 1995: n.p. [1-4].

[53]USAES, Fort Leonard Wood, MO, draft joint publication, JP X-0 (untitled), Colonel Davis personal research files, n.d., 1-8.

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[55]Joint Staff J4, Washington, DC, draft charter, "Engineer Interoperability Subgroup Charter for Development of Contingency Engineering Management Doctrine, Colonel Davis personal research files, Fort Leonard Wood, MO, dated 14 August 1995: 4.

[56]XVIII Airborne Corps Engineer, Fort Bragg, NC, memorandum for EIWG/CEM Doctrine Subgroup members, Subject: JTF Engineer Doctrine Development, dated 8 September 1995: 1-2.

[57]XVIII Airborne Corps Engineer, Fort Bragg, NC, memorandum for EIWG/CEM Doctrine Subgroup members, Subject: JTF Engineer Doctrine Development, dated 8 September 1995: C-1.

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[65]Lieutenant Colonel Baron Powell, DLRO, CGSC, E-mail to Colonel Glen Bottoms, Support Operations Assistant Chief of Staff, 310th TAACOM, Subject: ENCOM Participation in PW96, dated 27 November 1995: 1.

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[67]Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup, meeting notes, "Working Group Meeting 8-9 December, 1995," 3.

[68]Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup, meeting notes, "Working Group Meeting 8-9 December, 1995," 4 and 8-9.

[69]Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup, meeting notes, "Working Group Meeting 8-9 December, 1995," 17-18.

[70]Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup, meeting notes, "Working Group Meeting 8-9 December, 1995," 15.

[71]Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup, "Outline for a White Paper from the Joint Engineer Community on the Need for Contingency Engineering Operations Joint Doctrine," dated 10 December 1995: 1.

[72][Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup], draft white paper, "Joint Task Force Engineer Staff Organization and Functions," n.d., 5.

[73][Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup], draft white paper, "Joint Task Force Engineer Staff Organization and Functions," n.d., 3.

[74][Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup], draft white paper, "Joint Task Force Engineer Staff Organization and Functions," n.d., 3.

[75][Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup], draft white paper, "Joint Task Force Engineer Staff Organization and Functions," n.d., 4.

[76][Joint Staff J-4 ILED Engineer, EIWG/CEM Doctrine Subgroup], draft white paper, "Joint Task Force Engineer Staff Organization and Functions," n.d., 4-5.

[77]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview on 4 April 1996.

[78]Major Robert E. Craig, Jr., Major Rodney L. Croslen, Major Dennis L. Jasinski, Major Neil B. McElhannon, Major Mark A. Pohlmeier, and Major Douglas K. Tucker, Air Command and Staff College, Maxwell Air Force Base, AL, draft of student research paper, "Joint Combat Engineering" (filename 96-218mc.doc), dated 28 April 1996, n.p. [33-37].

CHAPTER 5

ENGINEERS IN OPERATION UPHOLD DEMOCRACY

The accomplishments of engineers in Operation UPHOLD DEMOCRACY (OUD) provide strong testament to the essential contribution required of engineers in military operations other than war. The unique resourcefulness and perseverance of the individuals involved produced these outstanding results in spite of deficiencies in joint doctrine. Joint doctrine assigns staff cognizance of engineering to the J4 Logistics. This caused a problem during JTF 180's planning for a forcible-entry operation into Haiti.

Since forcible entry is tantamount to an invasion of a sovereign state, this planning was extremely sensitive and was highly compartmentalized. Very few people got into the conference room and those who did had to have the highest clearance. The J4 at ACOM and the G4 at XVII Airborne Corps had understrength sections. While they had access to the Sensitive Compartmented Information (SCI) planning cells, as a result of not having enough personnel, they chose to not fill their seats. This led to weak engineer and logistics representation in the planning.[1]

This became evident after the engineers arrived in Haiti from the inadequacy of the Engineer Preparation of the Theater (EPT), which is an engineer version of Intelligence Preparation in the Battlefield (IPB) process. OUD planners did not know ahead of time that the Trutier

Landfill was at overcapacity and was an enormous sanitation problem. They did not know that the drainage system in Port-au-Prince did not work. They did not know the status of the bridges and had to do hundreds of bridge reconnaissances. Not knowing the status of he bridges caused their main supply route (MSR) preparation, maintenance, and repair efforts to be reactive in nature once they arrived in theater. They did not foresee the 60-day delay that the LOGCAP contractor would need to reach full operation. They did not know that the sewage system was nonfunctional and that human waste disposal would be a huge problem. Only when the troops bivouaced in the Port-au-Prince International Airport (PAPIA) area before going on to mission locations, did they find out that they could not dig cat holes in most of their positions because human bodies were buried in so many places. They did not anticipate that the troops in the field would be at least ankle deep in human and animal feces and garbage. These were all aspects of the operation to which the engineers had to react after getting into theater. This was a byproduct of weak EPT and the logistics staffs remaining uninformed until late in the planning cycle.[2]

The engineers were completely out of the planning. The 20th Engineer Brigade had two seats in the XVIII Airborne Corps portion of the ACOM planning cells for the forcible-entry operation. That access started in April 1994. Colonel Thompson began personally attending with his Brigade Executive Officer in July. But he states that the plans were too compartmentalized because these two officers could not do enough by themselves, and they could not involve their staffs directly. He felt it was unwise to have the subject matter expects, his battalion

commanders, and the logisticians not involved in the planning. He also felt that they did not plan through enough of the different branches and sequels that could have occurred, such as a determined enemy mining the culverts under the PAPIA airstrip, blowing the airfield, and making the it unusable to strategic aircraft.[3]

Colonel Thompson found that this compartmentalization was in stark contrast to the permissive-entry planning. Since that was not as politically sensitive or as dangerous, it was not as highly classified. As a result, for JTF 190's planning, the whole Brigade S3 Operations shop and all the battalion commanders participated. The various scenarios were worked through and Colonel Thompson found that the JTF 190 planning was much more thorough. Unfortunately, their planning time was constrained, and the circumstances under which they committed were so unusual as to be unforeseeable no matter how thoroughly they planned.[4]

The difficulty of the late change to permissive entry was the NCA's refusal to allow the time requested by the military to adjust the flow of forces into Haiti. Ships en route were loaded to support JTF 180's forcible-entry operation, not JTF 190. The NCA aggravated this challenge by mandating that ACOM hold a significant portion of available aircraft in reserve in case JTF 190 required rapid reinforcement by parachute assault.[5]

Colonel Thompson explained that his staff focused first on the more dangerous aspects of both plans, neither of which was executed.[6] The disparity between his combat engineering focus and the J4's

logistics focus may explain how their EPT missed so many essential elements of information.

ACOM ordered OUD commanders late in the planning to "not do any nation building."[7] This can be traced back to the earliest planning at the Pentagon level where many officers were negative about any form of U.S. military intervention in Haiti. They were very concerned about US casualties and were skeptical about whether Haiti was valuable enough to risk American lives and DOD funds. General Sullivan, the Chief of Staff of the Army, was not outwardly negative, but he asked many questions to his staff about US casualties. Given the recent experience in Somalia, he was very concerned about force protection. He had the intelligence planners pursue every negative report which might indicate a threatening trend, although most all the incidents about which he expressed concern turned out to be isolated cases of unrelated violence. This transcended to the level of the field grade officers in the Army Operations Center being openly skeptical about the validity of OUD.[8]

General Sullivan expressed direct concern that there be no ambiguity on how to measure success for the operation. He felt that success hinged on two points: (1) the UN mandate to return Aristide and (2) the stability and prosperity of the nation following Aristide's return. With the latter point, he saw a direct role for U.S. military forces in beginning the repair of Haitian national infrastructure. He expected DOS reimbursement for early nation building type activities, because he saw it as central to the accomplishment of the administration's goal to return stability and prosperity to the nation of Haiti. He knew that the miliary would be on the scene first to

assess, prioritize and start the process of recovery while the public safety situation was still tenuous and before a contractor or DOS personnel could organize these efforts.[9]

DOS refused to provide any funds in reimbursement to the military initially. DOS was involved through USAID in a number of ways later in the operation, especially after it was handed over to the United Nations Mission in Haiti. But most of the effort for rebuilding Haiti was taken later through the UN and not through the JTF or DOS. Partly, this was because the operation kicked off the end of the fiscal year which made it harder for DOS to find money. Partly, it was because the provision of foreign assistance in general was politically sensitive to the American people who had also voiced a healthy skepticism of the validity of the operation. And lastly, it is because the UN was able to muster multinational approval, funding, and assistance which protected the US from the increased cost and decreased legitimacy of unilateral commitment.[10]

Comptroller General's audits in 1984 and 1986 of SOUTHCOM fund management for military engineer construction projects in Honduras found that SOUTHCOM overlapped these two categories inappropriately. This led to the detailed instructions published as Appendix A to JP 3-07.1, JTTP for Foreign Internal Defense, which cautions that violators may be subject to civil and criminal penalties under the Antideficiency Act (31 U.S.C. 1341[a]). As a result, commanders in OUD were ordered to not do any nation building and restrict engineer missions to those tasks which directly supported US military activities because DOS did not offer the FAA funding reimbursements that ACOM planners expected from OUD.[11]

When DOS reimbursement fell through, the guidance through ACOM to the JTF planners was to fix anything the JTF broke, but that no humanitarian assistance or nation building would be allowed. The guidance was that combat engineering support and base camp construction were the only viable missions for engineers. However, once in Haiti, the commanders were very frustrated by this policy. They quickly saw that the Haitian people expected overt infrastructure repair support for their country from the U.S. military, and that the reinstallation of the democratically elected government depended on the perception of its legitimacy among its citizens. Ergo, the mission depended on the people seeing some tangible evidence of the ability of the new government to restore public services and some degree of normalcy to everyday life. Locals were relatively vocal about this.[12]

The commanders saw that by engaging in humanitarian and civil assistance (HCA), they were able to garner a much greater degree of local security. This quickly won the hearts and minds of the people indigenous to the areas where they were operating. Instead of apathetically watching violence occur, even against U.S. soldiers, they helped American troops root out problems, encouraged the turn-in of weapons, and pointed out criminals, former attaches, and FRAPH (Revolutionary Front for Haitian Advancement and Progress) personnel who were instigators of human right violations. Instead of taking the law into their own hands, they cooperated with the authorities and with the Americans supporting those authorities to turn them in and let the system work.[13]

This frustration led commanders to a number of work arounds. Instead of developmental assistance which required DOS FAA funding, the commanders were authorized to use Title 10 O&M funds for HCA. The restriction with this approach was that those projects had to be directly related to miliary utility and have training value. Commanders from General Shelton on down decided to use HCA as much as the law and regulations allowed. Although they self-imposed mission creep to the limit of their capabilities, these additional missions were militarily related, such as restoring the electrical power in Port-au-Prince on 21 and 22 September.[14]

Public electricity was not critical to the functioning of U.S. military forces; however, it was certainly helpful. The decision was made to restore the local power as the first priority so that both the military and the civilians would have electricity. By 22 September, the 535th Prime Power Team had quadrupled Port-au-Prince's electricity by repairing and restarting three of the city's four power plants.[15] This boosted the morale of the populace in Port-au-Prince although it created problems for the military. It made patrolling a little harder because city lights reduced the advantages of US night vision devices. Also, the wiring for local structures was so haphazard that there were bare wires strung at truck top level across the streets. A number of troops got severe electric shocks when their antennas, trucks, or bodies touched these bare charged wires as they patrolled.[16]

Another example was restoring fresh water. Some wells were drilled and some pumps were repaired, because soldiers needed water. So they fixed the fresh water supply systems in a number of outlying

districts to serve military utility. More importantly, it helped accomplish the mission by restoring the faith of the local populace in governmental authority..[17]

The 27th Engineer Battalion constructed Camp Castle near the quarry in Bon Repos. In order to get the proper land, they took over a field that was normally used as a marketplace by the civilians. They built a pole barn a little further down the road which made a much better facility for them.[18]

TF CASTLE repaired 14 kilometers of old roads and completed 11 kilometers of new roads because the JTF needed to use those routes for operations. Incidentally, these roads were critical to the local economy..[19]

Another example was restoring the power in the outlying districts of Port-au-Prince and in small towns throughout the nation. Once Cedras came to power, his government stopped paying most of the government workers. As a result, Haitian infrastructure such as the public electrical power system systematically deteriorated. The generators that the 535th Prime Power Team repaired were nearly operational in many cases. Engineers brushed off contacts, replaced a few minor parts, oiled, greased, and filled the fuel tanks. In a few cases, filling the fuel tank and pushing the ON switch was all that was required.[20]

The best example of how far the limits of HCA authority were stretched is the garbage crisis. This had two major aspects. The first aspect was that Port-au-Prince had garbage and trash piled on both sides of the streets 6-10 feet high. It was so abominable that soldiers had

to pull almost across the intersections to see down side streets to check for dangerous oncoming traffic. Of course, this presented a huge sanitation problem and an ancillary requirement to solve this disease generator for troop safety. This was also a most visible sign of the efficacy of whichever government was in charge. The 52nd Engineer Battalion paired their dump trucks with SEE tractors to form Garbage Removal Emergency Action Teams (GREAT) which "worked with Civil Affairs personnel to remove over two-hundred tons of refuse from the streets of Port-au-Prince."[21] The 37th Engineer Battalion performed a similar service for the northern city of Cap Haitien.[22]

The second aspect of this was the Trutier Landfill which was grossly overfilled. This was aggravated by the disfunction of the combined storm and sanitary sewers which had ruptured, washed out the access road to the landfill, and washed out the sides of the landfill so that large amounts of trash were openly flowing into the bay. The 30th Engineer Battalion reconstructed the road to the landfill and its side walls. They brought the landfill under control and expanded it to meet its requirements.

Another facet of the self-imposed mission creep was the volunteer efforts that required little or no O&M funding and had no direct military value but were also critical to mission accomplishment. In the Cite de Soleil, the engineers and other soldiers went into one of the worst slums in the country. These soldiers used mostly scrap materials to build over a hundred desks and refurbish the plumbing and the electrical systems for a school. Throughout the country a number of schools and hospitals received this kind of volunteer off-duty

assistance from the soldiers to restore morale within the civilian population.

The third facet of this self-imposed mission creep provided a very interesting work around to ACOM's prohibition against nation building. Through their United States Agency for International Development (USAID), DOS had about $10 million in funds authorized for infrastructure repair projects. The obstacles were that this required the support of the local government and their application for the assistance through a complicated and bureaucratic process. While military personnel could not directly participate in applying for these funds, special forces teams took engineers to the outlying regions to meet with local leaders, assess their projects, and educate them on how to apply. Local leaders in the outlying districts of Haiti were very reluctant to step forward and assume any civic responsibility because it could be fatal, but with American troops on the ground they became less reluctant and participated in seeking the USAID support. This complimented the efforts undertaken by the U.S. military, then was augmented by the combined multinational effort and the UN's contracting.[23]

When the engineers arrived in Haiti, their alignment in accordance with joint doctrine under the J4 caused a number of problems. This was amplified by the last minute switch from forceful entry to permissive entry which changed units and their mode of entry. The TPFDDL was prioritized by the J3 and the engineers were the responsibility of the J4. As a result, engineer unit advance teams found themselves on the runway with their equipment clogging the

airfield and the port, but they did not have the right people there to drive it off. Most of the supplies and equipment clogging the ports belonged to other units. Civilian debris added to the congestion. The changes to the TPFDDL did not include the heavy equipment that the engineers needed do the clear the airfield and port. The buildup of forces and of engineer capability ashore was significantly slowed by this confusion and the blocking of the port and the runway.

During this period of initial confusion, both observers and participants felt that engineer efforts had more of a logistics rather than operational focus and this caused some interesting problems. ACOM sent their NAVFAC real estate team of seven people down early and they started acquiring real estate. This was a last minute reaction because under forceful entry, contracting or paying for real estate would not have been required, whereas under permissive entry, it was of critical importance to maintaining legitimacy to function under standard reimbursement and contracting rules. This team looked for land that was flat, clear, grubbed, and had potential access to roads, power, sewers, and water. What they leased were unplanted sugarcane fields near PAPIA which were indeed clear and grubbed but which had a small berm around them. What they did not realize was that this land was designed for flooding irrigation. This caused obvious problems for the troops trying to live there and the engineers had to correct the drainage so that they would not be knee deep in water after every rain. Ground commanders wanted secluded high ground, not for the drainage, but for security considerations. They found that their proximity to built-up areas and high traffic routes made their perimeter security unnecessarily more

difficult. The NAVFAC real estate team lacked the combat engineering experience and training needed to identify these factors.

JTF 190 had no theater-wide prioritization of facilities use or standardization of quality of life between services and units. It is instructive to read the Air Force RED HORSE AARs which complain that they had been sent in to construct force bed-down but were frustrated by five to seven day delays in receiving in their Harvest Eagle building supplies package. They felt that this was inappropriate and thought that future operations should realign TPFDDL management to correct this.[24] On the other hand, the perception of Army observers was that the Air Force wasted early C-5 lift capability to bring in a tremendous amount of construction material for their force bed-down well in advance of the Army. This caused a morale problem because Army units were billeted in framed tents around the perimeter of the same airfield where they could see relatively lavish Air Force housing accommodations. Airmen resided in plywood-roofed sea huts with air conditioning. These sea huts had signs stating "US Army Personnel Not Authorized" and "Army Keep Out." This was also complicated the luck of the draw when the military took over the PAPIA terminal building. The half the Air Force ended up with just happened to be air conditioned whereas the Army's side was only partly air conditioned.[25]

As the engineers perceived that the basic needs of soldiers were not being met, they took corrective action. A horrendous example of this was human waste disposal. The troops could not dig cat holes or field latrines because of the frequency of buried human remains. The open sewers for sanitary drainage were clogged with garbage. This was

not a JTF planning consideration. The Air Force brought several sanitary suction trucks (SST) to service their fiberglass portajohns. The Marines brought plywood outhouses with 55-gallon drum halves in the bottom which they pulled out to incinerate the accumulated waste. Most Army units came unprepared so the engineers were quickly tasked to create a lot more of these plywood outhouses. The Air Force had to bring in more SSTs to replace all of their initial equipment which wore out from overuse.[26] Even as late as 14 October, SSTs were briefed as a pacing item to commanders at every level because of how critical the human waste issue was. It took until late October to get the problem under control.[27]

The advance elements of the 20th Engineer Brigade and the 41st Engineer Battalion began arriving in country from the very start on the 19th of September. To support JTF 190, they brought in prime power and LOGCAP contracting capability. They were followed on September 25 with the remainder of the headquarters of the 20th Engineer Brigade and the 535th Prime Power Team. Engineer unit closure dates and lists of missions assigned and accomplished by each engineer unit is depicted in Figure 2. These lists help establish the significance of the engineer contribution to OUD and justify the consolidation of engineer capability. They show how each engineer unit was tasked to support more than one maneuver unit and to perform missions in several different locations.

Colonel Johnson S. Thompson, Commander of the 20th Engineer Brigade, convinced the Commander, JTF 190 to organize a JFEC between D+10 and D+12 and name it TF CASTLE. As TF CASTLE was formed, the

medical and MP units were brought out from under the J4 as well. This task force was organized around the elements of the 20th Engineer Brigade already committed to OUD: the 27th Airborne Engineer Battalion, the 30th Topographic Airborne Engineer Battalion, the 37th Airborne Engineer Battalion, the 535th Prime Power Engineer Detachment, and the 20th Airborne Engineer Brigade Headquarters. Under the TF CASTLE organization, 20th Engineer Brigade assumed OPCON of the 820th RED HORSE, the 41st Combat Engineer Battalion, and the 52nd Combat Heavy Engineer Battalion as shown in Figure 2. The 30th Engineer Battalion had OPCON of the 264th Medium Girder Bridge Company, the 586th Afloat Bridge Company (-), the 642nd Construction Support Equipment Company, the 95th Fire Fighting Detachment, the 133rd Terrain Detachment, and the 543rd Terrain Detachment.[28]

Colonel Thompson appointed Lieutenant Colonel Grisoli, Commander of the 41st Engineer Battalion from 10th Mountain Division, as his deputy and assigned him to run the engineer special staff section. This section functioned as a coequal to the J2, J3, J4, and J5 on the JTF 190 staff. Lieutenant Colonel Grisoli used his 41st Engineer Battalion staff to perform these functions, positioning engineer liaison sections in the J2, J3, J4, and J5 staff sections of the JTF 190 staff. For this assignment, the 41st Engineer Battalion Headquarters took control of the NAVFAC real estate team, the 416th ENCOM's CREST, and the USACE LOGCAP contract coordinator as shown in Figure 3.

Once the 820th RED HORSE had completed constructing Camp Falcon for Air Force bed-down and force protection, they supported the 10th Aviation Brigade and provided some on-call combat engineer support for

Task Force STRIKE. The also repaired the road that led from PAPIA down to the port. This road was not directly related to Air Force operations. Their participation in TF CASTLE made it a joint effort and represented success in a joint engineer operation tasking a unit from a another service to step outside their normal mission tasking boundaries.[29]

The 10th Mountain Division staff was too junior and inexperienced to function at the level of a JTF. Colonel Thompson commented that a corps staff is the lowest level at which the officers and senior NCOs are experienced enough to handle the international relations and combination of new and unusual units and capabilities typical of operations other than war and joint operations. He was better prepared to take charge and organized an efficient engineer effort for JTF 190 because he was so much more experienced than anyone in their organization. TF CASTLE improved engineer effectiveness because it consolidated limited engineer capability theater-wide and matched that against the theater-wide overcommitment to prioritize the application of engineer effort to best accomplish the JTF Commander's intent and the mission.[30]

Engineer successes were many. TF CASTLE completed nine base camps under difficult conditions and questionable security because local contractors and LOGCAP were not capable of standing up and operating in time to meet this requirement. These camps housed over 12,000 personnel. They were able to build a multipurpose range complex which allowed the units to prevent deterioration of combat skills. They repaired roads, did numerous civic action projects, yet never forgot

force protection, firefighting, topography, maneuver support, and construction contracting. They were able to establish initial entry standards for force bed-down in a dangerous environment where combat engineers were best suited to operate. They were able to do a good deal to repair and restore the national infrastructure in terms of roads, sewage, water, and power. They were successful at base camp master planning even though JTF 180 and ACOM canceled bills of materials on the presumption that the LOGCAP contractor could become operational much sooner than was possible. They assisted the town of Jacmel in recovering from Tropical Storm Gordon as shown in Figure 4. Engineers were critical to returning those areas to normalcy, greatly boosting the morale of the population and contributing to mission accomplishment. An appreciation for the scale of these accomplishments can be gleaned from the statistics in Figure 5.

The OUD engineer effort showed a few weaknesses. The drainage of the fields where Camp Dragon was placed is one of these. This was caused by the J4's NAVFAC real estate team which did not understand the security and other requirements of the ground forces. The base camp initial entry standards were not a great success because no board or control mechanism was organized to prevent wide disparities in living conditions from becoming a morale problem. Operational planning and EPT failed to identify the indigenous sanitation threat and its importance to troop safety and OUD mission accomplishment.[31]

Military operations other than war require greater flexibility than more conventional scenarios of deployment, especially for the engineers. The history of engineers in OUD is a tale of poor planning

and initial confusion from which they rescued themselves by consolidating engineer units under a single command and removing engineering from the exclusive staff cognizance of the JTF J4. OUD was an engineer success and the lessons learned in engineer staff cognizance and the consolidation of a JFEC can have long lasting positive impact on future joint engineer operations.[32]

Endnotes

[1]Colonel S. Thompson, TF CASTLE Commander, recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS (cited hereafter as CSI).

[2]Colonel S. Thompson, TF CASTLE Commander, recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[3]Colonel S. Thompson, TF CASTLE Commander, recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[4]Colonel S. Thompson, TF CASTLE Commander, recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[5]Lieutenant Colonel Louis J. Sperl, doctrine writer, Corps and Division Doctrine Directorate, CGSC (former Haiti Team Chief for the Center for Army Lessons Learned), unrecorded interview by author on 14 June 1996.

[6]Colonel S. Thompson, TF CASTLE Commander, recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[7]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[8]Major Jiyul Kim, CGSC student (Chief of the Current Crisis Intelligence Cell at HQDA during OUD), author's recorded interview at Fort Leavenworth, KS, on 23 February 1996. CSI.

[9]Major Jiyul Kim, CGSC student (Chief of the Current Crisis Intelligence Cell at HQDA during OUD), author's recorded interview at Fort Leavenworth, KS, on 23 February 1996. CSI.

[10]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[11]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[12]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[13]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[14]Colonel S. Thompson, TF CASTLE Commander,recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[15]TF CASTLE AAR [Fort Bragg,NC], n.d. [March 1995], 15.

[16]Major Christopher Hughes, CGSC student (CALL Team member during OUD), Author's recorded interview at Fort leavenworth, KS, on 29 March 1996. CSI.

[17]Colonel S. Thompson, TF CASTLE Commander,recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[18]Major Christopher Hughes, CGSC student (CALL Team member during OUD), Author's recorded interview at Fort leavenworth, KS, on 29 March 1996. CSI.

[19]Colonel S. Thompson, TF CASTLE Commander,recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[20]Major Knowles Y. Atchison, CGSC student (Deputy J4 for TF BLACK in OUD), author's recorded interview at Fort Leavenworth, KS, on 18 March 1996. CSI.

[21]TF CASTLE AAR [Fort Bragg, NC], n.d. [March 1995], 15.

[22]AAR briefing to Brigadier General Close [at Fort Bragg, NC] on 2 March 1995, slide 24, titled CAP HAITIEN.

[23]Major Christopher Hughes, CGSC student (CALL Team member during OUD), Author's recorded interview at Fort leavenworth, KS, on 29 March 1996. CSI.

[24]Major Miller, 820th RED HORSE Squadron Deployed, PAPIA, Haiti, AAR input, JULLS number 10225-91000 (00001), Subject: Delays in RED HORSE Deployment, dated 1 October 1994: 1.

[25]Major Christopher Hughes, CGSC student (CALL Team member during OUD), Author's recorded interview at Fort leavenworth, KS, on 29 March 1996. CSI.

[26]Captain Kelly E. Slaven, USAES doctrine writer (OUD CALL Team Engineer), author's recorded interview at Fort Leonard Wood, MO, on 28 December 1995. CSI.

[27]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

[28]TF CASTLE AAR [Fort Bragg, NC], n.d. [March 1995], 17.

[29]820th RED HORSE Squadron Deployed, JTF 190, Base Camp Falcon, Port-au-Prince, Haiti (Nelis Air Force Base, NV), memorandum, Subject: Engineering SITREP Number 9, dated 16 October 1994: 1-2.

[30]Colonel S. Thompson, TF CASTLE Commander,recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS. CSI.

[31]AAR briefing to Brigadier General Close [at Fort Bragg, NC] on 2 March 1995, slide 31, titled ENGINEER SUCCESSES.

[32]Major Thomas Ziek, CGSC student (augmentee to 44th Military History Detachment from USMA during OUD), author's recorded interview at Fort Leavenworth, KS, [April 1996]. CSI.

CHAPTER 6

ANALYSIS

Operation Uphold Democracy (OUD) is an adequate source of useful and instructive lessons about joint engineering operational doctrine. While as a peacekeeping operation, it was only one type of operations other than war scenario, it should be considered a bellwether indicator because the work arounds and methods used were the cumulative result of several years of recent joint operational engineering experience. Thus it is appropriate to presume a broader applicability to these lessons across the spectrum of operations other than war.

OUD's effectiveness as an ideal operation to showcase USAES concepts for how to best organize and command engineers in joint operations was mitigated by the NCA's late switch to permissive entry. This complication was the chief cause of most of the initial confusion described in chapter 5. Colonel Thompson and the J4 must share responsibility for the deficiencies of the EPT, but both may also be absolved by these trying circumstances to some degree. Regardless, many OUD lessons about joint engineering operations stand alone despite the compromising effect of the confusion over modes of entry.

The hot controversy over control of the LOGCAP program has only minimal relevance to this research.[1] This issue's impact derives from the necessity of integrating LOGCAP contracting into the overall theater engineer support plan. Under most JTF engineer staff options discussed

in this thesis, this work would be done by the engineer liaison staff collocated with the J4 so that whether it was AMC or USACE representatives doing it would not impact materially on the overall doctrinal concept. This is not to endorse DSC/LOG's recommendation because USACE representatives are far more qualified than AMC personnel at this point to perform this function. In any case, the lesson that OUD experience provides is that the viability and the responsiveness of local contractors, host nation support, and imported LOGCAP contractors must be considered in balancing out an integrated theater-wide prioritization of engineer taskings.

Nation building (or mitigating military civic action as the CALL first volume advises to be the correct term in Army doctrine)[2] is important to success in operations other than war. Brigadier General Anderson saw that these efforts created a "atmosphere of normalcy"[3] and General Sullivan stated that they were essential to reestablishing stability and prosperity enough to comply with the UN mandate to return Aristide and his government to power in Haiti. Joint Staff and ACOM planners expected DOS funding to support this nation building and were surprised when it did not materialize. This may have been due to an end of fiscal year funding crunch at the DOS or they may have felt the same popular negativism on the intervention option evident even within the pentagon. It caused ACOM to order that all construction activities be restricted to direct support of US forces, and this confused and frustrated the brigade commanders on the ground. Commanders were able to work around this impediment by stretching the limits of O&M funded HCA, but they should not have been put in that position.

Mitigating military civic action improves the security of soldiers by enhancing goodwill with the local civilian population. This obvious advantage should prescribe that DOS funding be programmed for almost every operation other than war mission. It is only mission creep if the planning has failed. For this part of JTF planning to succeed, the NCA, DOS, and DOD must have a realistic appreciation for the essential nature of this requirement in all contingency operations, and they must reach political consensus early on the scope of nation building and mitigating military civic action for each contingency.

The engineer plan must be completed before deploying. Atlantic Command (ACOM) and their planning cells that prepared for OUD never completed a civil engineering support plan. It would have been quite helpful in preventing the resultant confusion about engineer missions, priorities, end states, and task organization which hampered the initial stages of the operation. The JEPES and the CESP it generates provide a civil engineering analysis. However, even though the engineers at ACOM are in the J4 division, they did not complete a CESP, and it was not completed later on during the operation. This caused a cancellation of the first building materials order submitted for base camp construction and even that was not submitted until after TF CASTLE was formed. While engineers on the ground were able to work around this and to develop the engineer command and control and the engineer staff structure after arriving in theater, it would have been preferable to have worked some of these things out ahead of time.[4]

The lessons are that not only must the CESP be completed as early as possible but that it is not comprehensive enough even though it

is the only element of its kind joint doctrine. It should be integrated into the overall engineer plan as a subset of a joint engineer support plan which includes planning for combat engineering requirements and capabilities. This plan should specify separate target engineer end states for each phase of the operation. It should specify a simple, consolidated command and control structure, but it should also organize a flexible and dynamic engineer employment concept.

While consolidation ensures efficiency, this will probably not be practical upon initial entry into theater. A more practical approach is to organize a joint force engineer command ahead of time but to send the initial engineer elements into the theater OPCON to the lead elements until the requirements for mobility, countermobility and survivability support for initial entry operations start to diminish. Then this flexible concept would allow engineer units to pull back under centralized control as the situation becomes more stable and the focus of the operation changes.

Joint doctrine fails to define or address the employment of combat engineering functions. It only addresses civil engineering support. The door is left open to the combatant commander or JFC to prioritize, adjust, and task his components for engineer support for whatever the theater requires across service lines. However, this does not take into account the logistic and single service support nature of Navy and Air Force engineers and the nature of Marine Corps engineers which are split into combat engineer battalions and engineer support battalions which are rarely close enough in time and space to be able to support one another.

Most importantly, however, is the flexible capability inherent in Army engineer units which are capable of performing a wide range of combat engineering and sustainment engineering functions. Joint doctrine does not account for the dual nature of these units because it only addresses the system for prioritizing civil engineering support capabilities. It does not address how JFCs should prioritize engineer tasking to achieve an adequate balance between the logistics and the front line support missions for those units which can also perform combat engineering support functions (which must take a higher priority). Unfortunately, this compartmentalized inefficiency is reinforced in JP 4-04 which states that "the implementation and execution of civil engineering functions remain the responsibility of the service and the service component commanders."[5] This confusion may be taken advantage of by those seeking to subsume staff cognizance for all engineer tasks under the J4 and command of all engineer units under some form of a theater-level logistic support command.

The gap in joint doctrine for engineering is readily apparent when this doctrine is compared against the Universal Joint Task List. The Joint Staff J4 believes that combat engineering tasks are mostly tactical level of war tasks which are specifically service responsibilities. That perspective is not supported by the explanation in the UJTL. This manual explains that "if significant elements from two or more services assigned or attached operating under a single commander authorized to exercise operational control are assigned to perform a task, then the task is joint."[6] The manual further states that "while strategic level tasks are more likely to be joint than

tactical level tasks, level of war alone does not determine whether a task is joint."[7] While the Joint Staff J4 dismisses this manual as less than germane to joint engineering doctrine, it remains the official codification of what DOD units are expected to train for, plan for, and be able to execute in joint operations.[8]

Cursory analysis of the accomplishments of TF CASTLE listed in Figure 2 shows that the majority of their effort was dedicated to sustainment engineering missions. The relative proportion of sustainment engineering versus combat engineering would probably in larger contexts such as the defense of South Korea. This preponderance must not be used to negate the greater importance of combat engineering functions and the provision of all engineering support to forward echelons.

Joint doctrine is not current on engineer employment. Joint doctrine should reflect the best current solutions developed in the arena of our most recent operational experience. The literature has documented US operational experience which led to the JFEC concept. OUD has proven its effectiveness in action.

This research has distilled from the literature four potential options for the other major issue of organizing the Joint Force Engineer's staff to provide adequate staff supervision over the full spectrum of joint engineer operations. The first option is to do nothing, leaving sole staff cognizance for all engineer operations under the J4 Logistics of the joint force staff. The second option is to assign sole staff cognizance to the J3 operations for those missions where the engineer requirement is rather limited. The third option is

to organize a JTF engineer special staff section which would have liaisons located in the J2 Intelligence, J3 Operations, J4 Logistics, J5 Civil Affairs, and J7 Plans sections. The final idea identified was the concept of creating a JTF J9 Engineer section, as a primary staff section coequal with the primary staff sections.

This final concept received only brief mention in the notes of the December conference and has been resurfaced in personal interviews with Colonel Davis giving his strong endorsement. This concept is not given thorough consideration here because it has not been well developed, because it does not appear to have broad consensus, and because it does appear to invite the same problems experienced during recent operations with sole staff cognizance under one primary staff section. These problems are that the JTF staff is often so spread out that sole cognizance for an issue as broad as engineering tends to establish staff isolation if buried under one staff section. Physical contact and transfer of information by liaison sections in each of the key staff sections coordinated by one overall special staff section seems to be a much more workable solution if the problems of force structure can be worked out.

The USAES position strongly supports the JFEC and the JTF engineer special staff section concepts. Brigadier General Anderson stressed that only much more robust and centralized engineer command, control, and planning capabilities can achieve the degree of efficiency of engineer effort throughout the entire joint operational area obviated by the draw down of engineers to battalions of less than 900 soldiers

which are far less flexible, have less defensive capability for the sake of greater offensive focus."[9]

Most Army engineer officers interviewed voiced the sentiment that "the Army must get CASCOM back in their box."[10] However, Brigadier General Anderson espoused the wiser philosophy that "our argument is with commanders, not logisticians."[11] JTF commanders have full flexibility to organize their staffs and their subordinate commands as they like and combatant commands have the power to get any issue they desire onto the agenda for the JDWP.

CASCOM and Joint Staff J4 appear to be stalling the issue to preserve the status quo. They believe that it does not matter where the engineer staff is located because the staff cognizance of all engineers in the J4 is adequate; the J4 has a requirement for engineer staff support and the engineers in that location can communicate with the J2, J3, J5, and J7 as necessary to conduct required staff coordination.[12] This position is in direct contradiction to the consensus built and disseminated as a result of the Contingency Engineering Operations Doctrinal Working Group which the Joint Staff J4 convened and presided over.

They discount the method of counting UJTL tasks and subtasks to analyze the propriety of where to concentrate staff cognizance of engineer efforts as being inappropriate because it does not calculate the preponderance of engineer force structure by missions.[13] This researcher's UJTL analysis does concentrate on missions whereas quantifying force structure assigned to various tasks would be scenario dependent and almost impossible to calculate with broad applicability of

the results. Additionally, the point of whether sustainment engineering effort outpaces combat engineering effort is moot for two reasons. First, because both categories are required by both maneuver and logistics units. Secondly, USAES cedes the point because the more relevant issue is how best to focus the first priority for all engineering on forward echelons.

The Joint Staff J4 dismisses USAES recommendations as cold war mentality and "sixth component syndrome."[14] This is misleading because the issues of updating joint doctrine to address combat engineering functions, improving command and control of engineers in joint operations for greater efficiency, and improving the JTF staff structure to adequately integrate engineer effort theater-wide do not necessitate additional force structure. All of these issues can be addressed and corrected by tasking out existing engineer commands and staffs as explained above.

The J4 is receptive to the author's idea of a joint engineer tasking board similar to the JCMEB, the JFUB, and the JEMB.[15] These boards in joint doctrine are established by imposing additional duties on existing staff structure and are designed to resolve turf battles and internal conflicts between subordinate commands, services, and staff sections. They do not enlarge the staff. A joint engineer tasking board chaired by the JTF Engineer versus the other three boards that are now chaired by the joint force J4 could even reduce the workload and number of meetings on the JTF staff by consolidating the functions of the three existing boards under the responsibilities of this one joint engineer tasking board.

The position of the other services must also be seriously considered. While this research was not able to draw official responses from the services, some indications from the literature and existing documents can be drawn. Lieutenant Colonel Paczkowski served as secretary to the Contingency Engineering Operations Doctrine Subgroup and represented the Installation and Logistics Directorate of Headquarters, Marine Corps in their proceedings. He was supportive enough to publish the proposed white paper which detailed the JTF engineer special staff concept. The Navy has recently committed two construction battalions to Bosnia, although they were tasked to support ground forces.[16] The Air Force recently separated out their Civil Engineer out from under the logistics portion of their Air Staff and the research report of their six engineer officers in this year's Air Command and Staff College specifically recommended the JFEC and the JTF engineer special staff section concepts for implementation. These facts point to potential support from the other services.

The location of engineers on joint and combatant command staffs makes a difference in how joint task force commanders structure their staffs when they gear up for a mission. Creating a subordinate staff in the image of the superior headquarter staff obviously simplifies reporting and interface with higher headquarters. In this regard, J4 Logistics certainly has the upper hand. The Joint Staff only has three engineer officers, all of whom are in the J4 Logistics Directorate. Almost all of the unified and specified command staffs have all of their engineer staff in their J4 Logistics staff sections. The only exceptions are: (1) SOUTHCOM which has an engineer special staff

section of five or six officers because of its extensive engineer operations in Honduras; (2)Combined Forces Command Korea which has an engineer special staff section; and (3)the US Army Europe which has a Deputy Chief of Staff for Engineering.[17] These three aberrations create the potential for champions in SOUTHCOM, EUCOM, and PACOM.

Endnotes

[1]In March 1995, the DCS/LOG, Lieutenant General Wilson, recommended that administration of the LOGCAP program be transferred from USACE to the US Army Material Command (AMC). Immediately General Solomon, the AMC Commander, concurred. In June, General Wilson requested TRADOC's input on how this change would affect emerging Force XXI Army doctrine. The Army's Deputy Chief of Staff/Doctrine, Brigadier General Morris J. Boyd, replied soon after that he felt that this was a policy and not a doctrinal issue. USACE Commander, Lieutenant General Arthur E. Williams, and USAES contend that USACE has all the experience, USACE already has set up rapidly deployable civilian and military experts to augment JTF staffs in the implementation of this program, and lastly that AMC does not yet have the authority or expertise to be able to adequately develop, award, or execute the engineering services half of LOGCAP's current execution. USACE and USAES are fighting DCS/LOG for USACE to retain control of this program. The engineer community sees this as further evidence of logistician empire building while the AMC views this as just a natural extension of their logistics support element split basing concept.

[2]U.S. Army Combined Arms Command, Center for Army Lessons Learned, Operation Uphold Democracy: Initial Impressions, vol. I, Haiti D-20 to D+40 (Fort Leavenworth, KS: Center for Army Lessons Learned, December 1994), 204.

[3]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December 1995. Interview tape recording and author's notes on file with the Combat Studies Institute, CGSC, Fort Leavenworth, KS (cited hereafter as CSI).

[4]Colonel S. Thompson, TF CASTLE Commander,recorded interview in Port-au-Prince, Haiti, with an historian from the U.S. Army Center for Military History on 17 October 1994. Interview tape recording and author's notes on file with CSI.

[5]Joint Chiefs of Staff, JP 4-04, Joint Doctrine for Civil Engineering Support (Washington, DC: USGPO, 24 February 1995), III-2.

[6]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-1.

[7]Chairman of the Joint Chiefs of Staff, CJCSM 3500.04, UNIVERSAL JOINT TASK LIST (UJTL) (Washington, DC: USGPO, 15 May 1995), 2-1.

[8]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[9]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December

1995. Interview tape recording and author's notes on file with CSI.

[10]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December 1995. Interview tape recording and author's notes on file with CSI.

[11]Brigadier General Phillip R. Anderson, USAES Deputy Commandant, author's recorded interview at Fort Leonard Wood, MO, on 27 December 1995. Interview tape recording and author's notes on file with CSI.

[12]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[13]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[14]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[15]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

[16]Captain Kelly E. Slaven, USAES doctrine writer (OUD CALL Team Engineer), author's unrecorded interview at Forteavenworth, KS, on 12 May 1996.

[17]Commander Hugh Reams, Joint Staff J-4 ILED Engineers, Washington, DC, author's unrecorded telephone interview from Fort Leavenworth, KS on 4 April 1996.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

Joint doctrine must evolve to accommodate the increasing incidence and importance of smaller contingency missions. It was designed to support multiple corps commitments like Operation DESERT STORM and the defense of South Korea, but it does not differentiate doctrine for the missions of limited scope and duration assigned to JTFs. OUD lessons may not be as valid for CINC-level joint operations.

Joint doctrine needs to be updated to include a new JP 3 series publication which addresses integration of engineer operations throughout the entire theater and specifically addresses employment of combat engineering functions. It is inadequate to presume that combat engineering is a tactical level responsibility of units subordinate to JTF. The UJTL clearly identifies combat engineering functions that are critical to operational level success. These functions are so critical that they justify a reorientation of joint doctrine for engineers away from an exclusively logistics focus to a more balanced perspective which allows the first priority to be combat engineering in support of lead echelons.

Joint Doctrine is built upon the presumption of the engineering selfsufficiency of each service component's contribution to joint operations. This is not realistic for the smaller contingencies so common today. JTF commanders reached across doctrinal service lines for

engineering support in Operation UPHOLD DEMOCRACY (OUD) just as in most recent operations. Joint doctrine should evolve to reflect the common sense solutions developed by field experience in this regard.

This doctrine must be flexible and nonprescriptive giving the JTF commander maximum leeway to adjust to his particular circumstances. The doctrine should specify more than one alternative as viable under different circumstances. Sole J3 staff cognizance should be recommended for missions with a low engineer requirement. An engineer special staff section should be recommended for mid and high level engineer requirements. Commanders must understand how to focus the first priority of their engineer support to the front line war fighters, especially during early entry and understand how centralized control allows them to shift the focus of engineer effort to critical choke points during execution such as port and airfield impediments which constrain the pace of building combat power. They must understand how heavy and bulky engineer equipment is and how that makes the buildup of engineer capability in theater a slow and tedious process. Doctrine should encourage commanders to reach completely across service and multinational lines of normal functioning to address critical situations such as a lack of airfield or port throughput capacity critically hampering the rate of force buildup ashore. This publication should define the CJCS's role in achieving political consensus on the scope of military nation building for each contingency operation stress the need for him to do so as early as possible in the planning cycle. This joint doctrine should draw the joint commander's attention to these important

organizing decisions early and then give him guidance how to adjust according to the situation he encounters.

Engineers must participate from the earliest stages of operational planning. Commanders must be cognizant of the effect that compartmentalization has on synchronization and remember that access to classified information is their decision. Engineer staff members on the combatant command staffs as well as the ENCOMs and corps-level and engineer brigade-level staffs assigned to support them must get SCI clearances and the combatant command staffs must allow them access to these compartmentalized planning cells for the most sensitive operations. This access must include engineer staff representation in the J2, J3, J4, J5, and the J7 because this allows earlier integration in crisis action planning and more thorough planning products before operational deployment.

Joint doctrine should create a new board under the J3 operations to coordinate combat engineer employment throughout the theater and spectrum of joint engineer operations. This joint engineer tasking board should be chaired by the JTF engineer and should be the responsibility of the J3 operations. This board should take over some of the responsibilities from, if not supersede altogether, the JFUB, the JCMEB, and the JEMB. This board should be functioning soon enough before operational deployment to allow for soliciting broad input for fine tuning the joint engineer support plan and completing it before deployment. This board must pay particular attention to setting a construction standard which it will enforce consistently throughout the theater to preclude the morale impact of interservice disparities on

quality of living conditions. This standard should be set by phase for each deployment and should be set before the deployment leaves. It be enforced immediately and uniformly throughout the operation. This board should specify a target engineer end state for each phase of the operation and then monitor the status of engineer capability throughout the theater against a prioritized list of theater wide engineer requirements to adjust these end state goals as the operation progresses.

The joint staff and the combatant commands need to reorganize their engineer staff out from under J4 logistics. Sole J4 cognizance of engineers creates an impediment to JTFs desiring to organize under alternative staff structures because they will not find direct corresponding staff interface in the superior headquarters staff. The Joint Staff and the combatant commands should follow the lead of SOUTHCOM, CFC Korea, US Army Europe, and the Air Force Staff in establishing an engineer special staff section. Other alternatives such as a J3 engineer or a J9 primary engineer staff section should be considered, but not at the expense of engineer staff representation in the J2, J3, J4, J5, and J7 staff sections.

Enlisting combatant commands as champions will only postpone the need for USAES to listen for and accommodate legitimate logistician concerns. Logisticians fear commitments to situations like the Korean scenario in Prairie Warrior 1995. This war game had a huge communication zone in relation to the size of the combat zone with MSR maintenance requirements as high as 24 combat heavy engineer battalions while the play of the problem allowed the logisticians only two.[1] No

matter how much centralization of engineer command and control refocuses the priority of the overall engineer effort on the war fighters, these concerns cannot be ignored.

Additionally USAES must be more sensitive to the dollar and force structure impact of their recommendations. The Air Command and Staff research report concept for implementing their recommendations for a JFEC and a JTF engineer special staff section specifically mentions creating new staff positions and committing resources to fill them.[2] The USAES proposals must be improved to circumvent this serious disqualifier.

The best way to accomplish this without increasing force structure is to use what Captain Slaven called the modular concept of mobilization force packaging. This involves building the Time Phased Force Deployment Data List (TPFDDL) to give every JFC an engineer staff capability. The same split based concept used by USACE, NAVFAC and the ENCOMs to support OUD would be expanded to application by the Assistant Corps Engineer staffs of the four US Army corps and to the engineer brigade-level and engineer group-level staffs throughout the services. This would have to be backed up by regular JTF command post exercises and every combatant command should be assigned a specific ENCOM and a specific corps to support it. For every OPLAN assigned to that combatant command by the JSCAP, one of its assigned corps engineer groups or brigades would be assigned the task of supporting the JFEC responsibility and the corps Assistant Corps Engineer shop and the assigned ENCOM would fill the requirements for the JTF engineer special staff section. The latter could also be filled by one of that corps'

engineer battalion staffs (like the 41st Engineer Battalion staff accomplished in OUD).

Key elements of these JFECs and JTF engineer special staffs should be assembled twice a year at the combatant command headquarters immediately after each JSCAP is published to perform the engineer preparation of the theater and complete a joint engineer support plan for every OPLAN tasked by the JSCAP.

Finally this debate must be elevated above funding and force structure parochialism. This report has cited numerous quotes to demonstrate the often disappointingly puerile nature of the discussion because of the forces of internecine branch warfare and interservice warfare. There is more than enough common ground among these different positions to build workable and progressive solutions. Unfortunately emotionalism and parochialism too often interfere with the ability of the participants to perceive these potential accommodations.

This author recommends further study to examine the following questions which this research was not able to answer.

1. As the chief proponents for J4 control, how do the CASCOM, the U.S. Army Deputy Chief of Staff for Logistics (DCS/LOG), and the Joint Staff J4 Logistics Directorate respond to proposals for other command and control arrangements, and what is their rationale?
2. What is the perspective of the other services and the combatant CINCs and what is their rationale?
3. How can the U.S. Army best coalesce an internally unified position which will draw interservice and CINC consensus on joint engineering operational doctrine?

4. How can joint doctrine best adjust its CINC-level perspective to accommodate the varying levels of forces assigned to joint operations?
5. Considering their inexperienced and lean nature, can staffs below corps level from any service function adequately as a JTF headquarters?

Endnotes

[1]U.S. Army Combined Arms Command, Joint Venture Combined Arms Assessment Team, Prairie Warrior "95: Initial Impressions (Fort Leavenworth, KS: Center for Army Lessons Learned, 2 June 1995),

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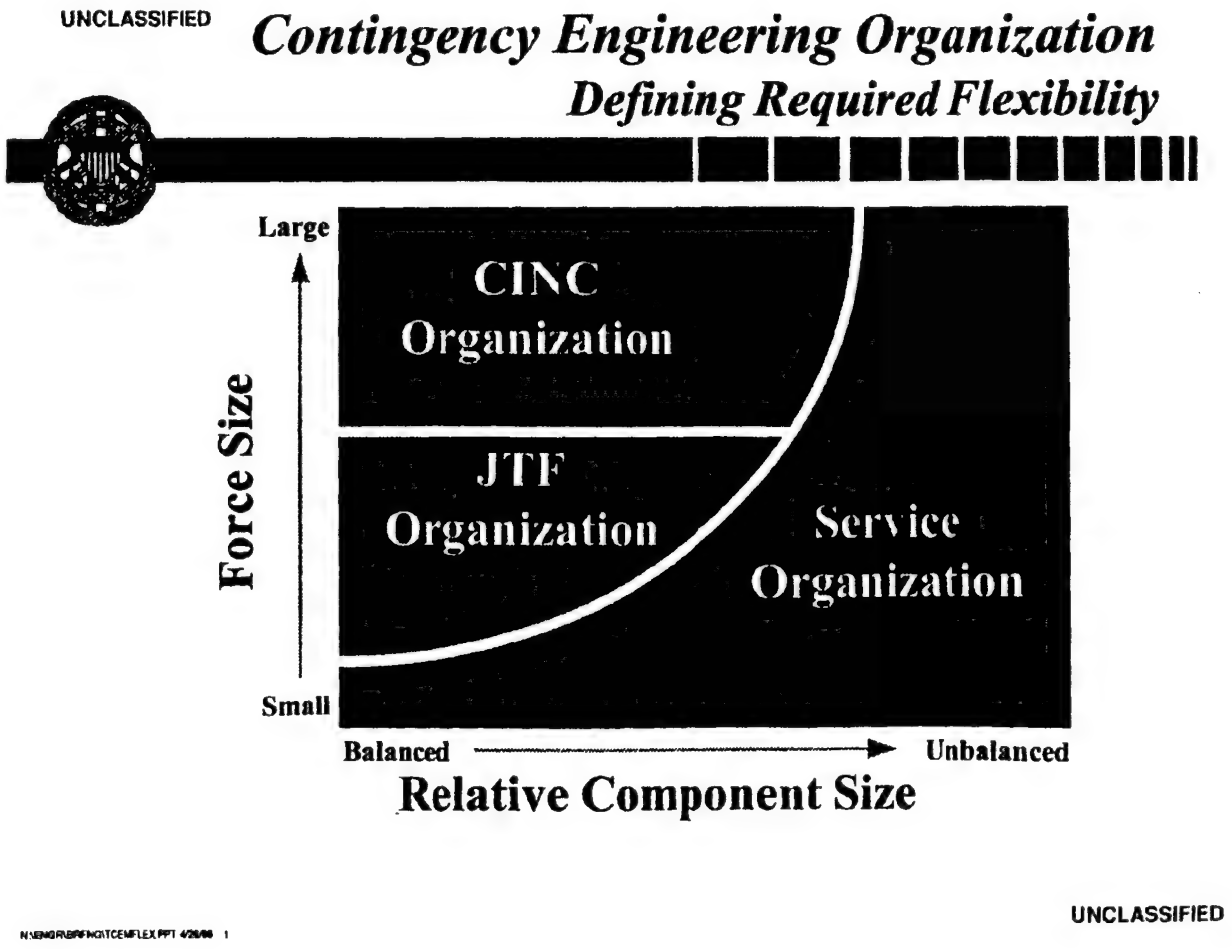


Figure 1. Source: Commander Hugh Reams, Joint Staff J-4 ILED Engineer, Washington, DC, E-mail to author, Subject: , dated 26 April 1996: 2.

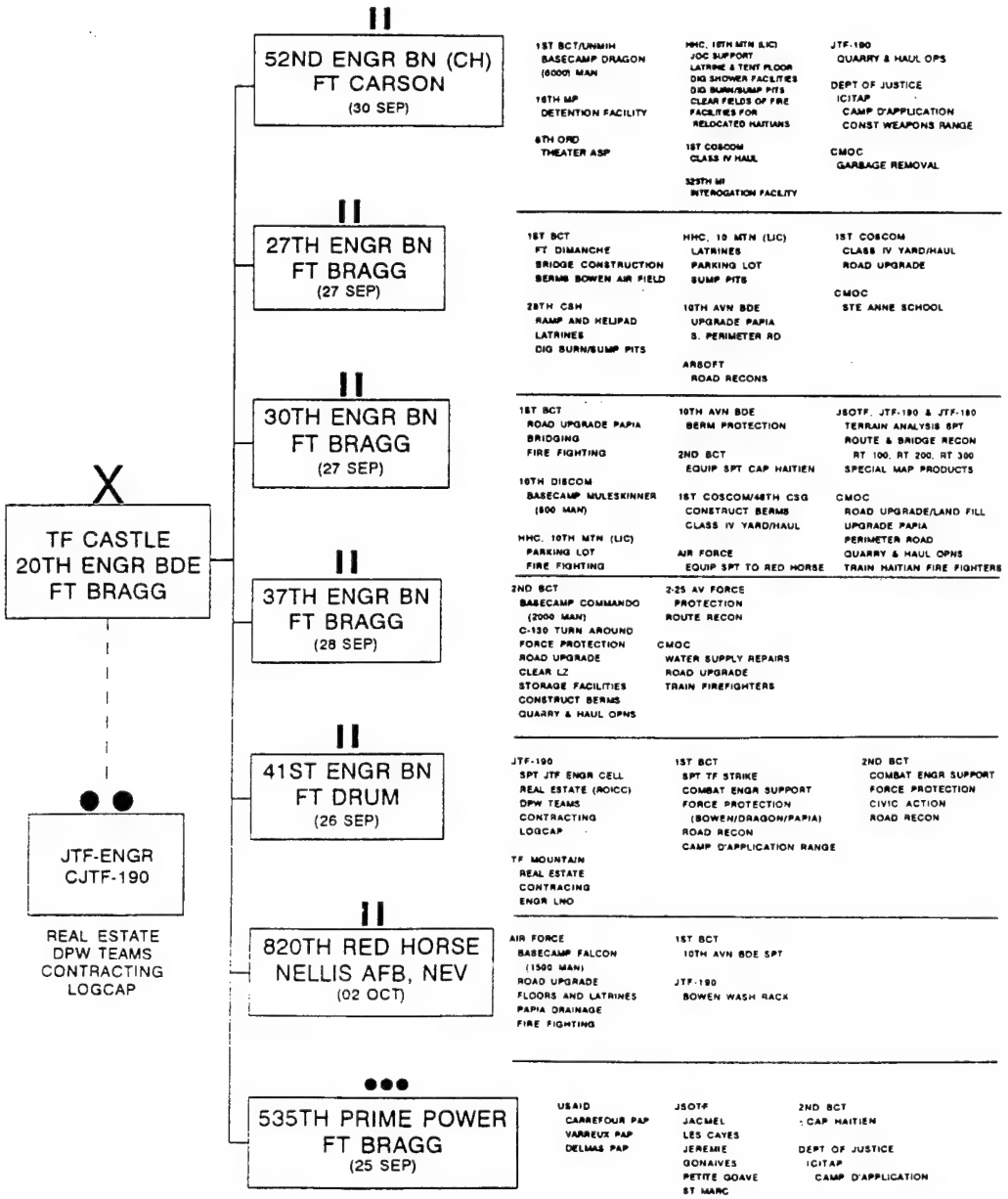


Figure 2. Source: TF CASTLE [Ft Bragg, NC], AAR, n.d. [March 1995], 17.

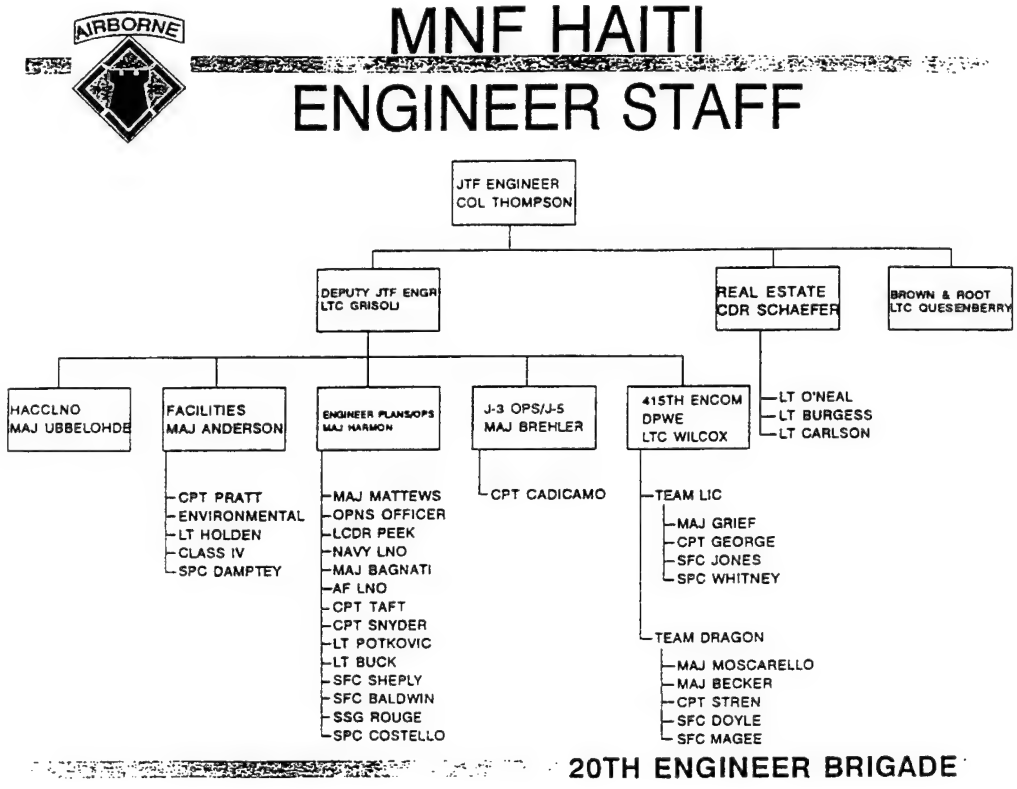


Figure 3. Source: TF CASTLE [Ft Bragg, NC], AAR, n.d. [March 1995], 39.

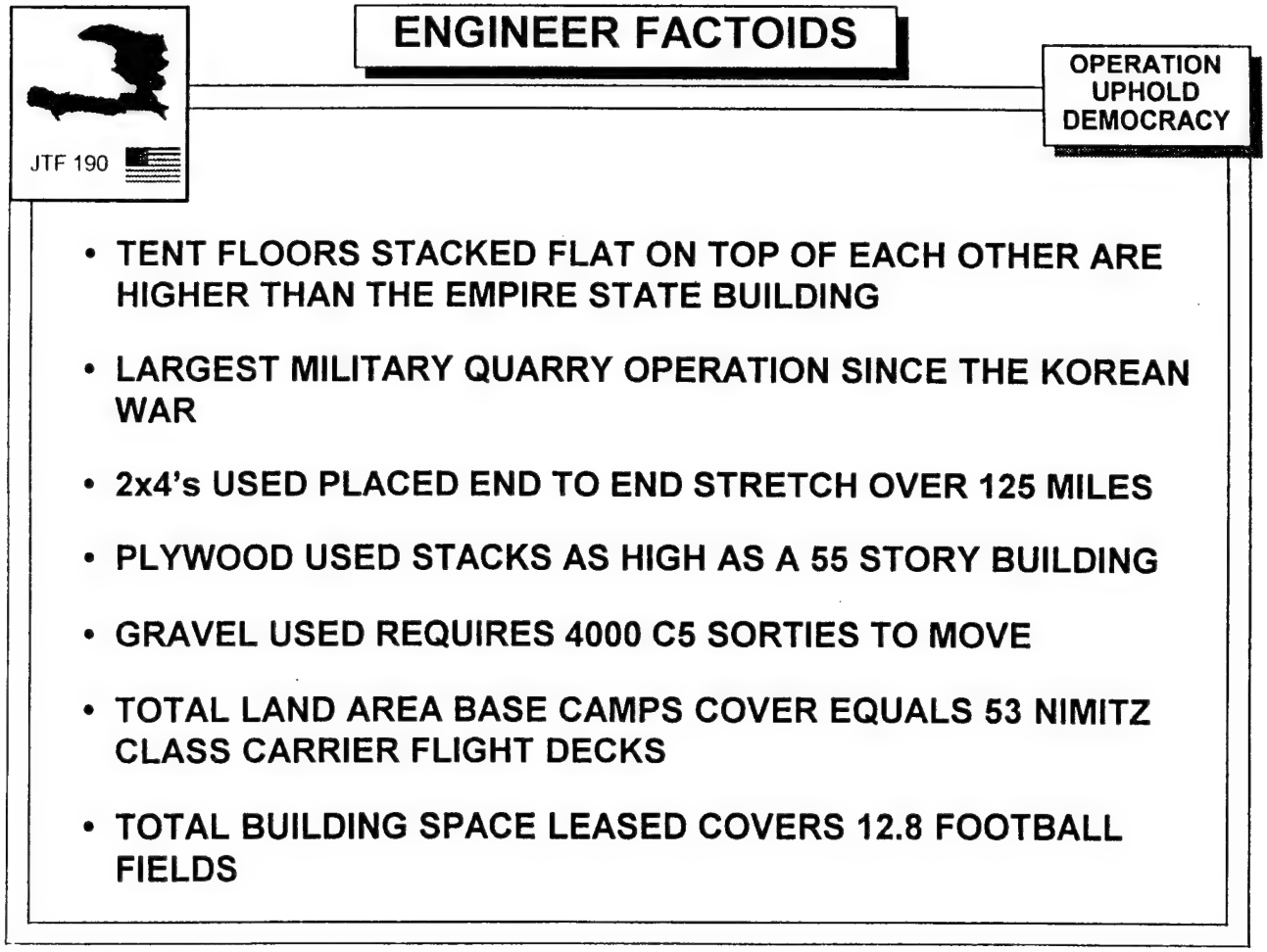
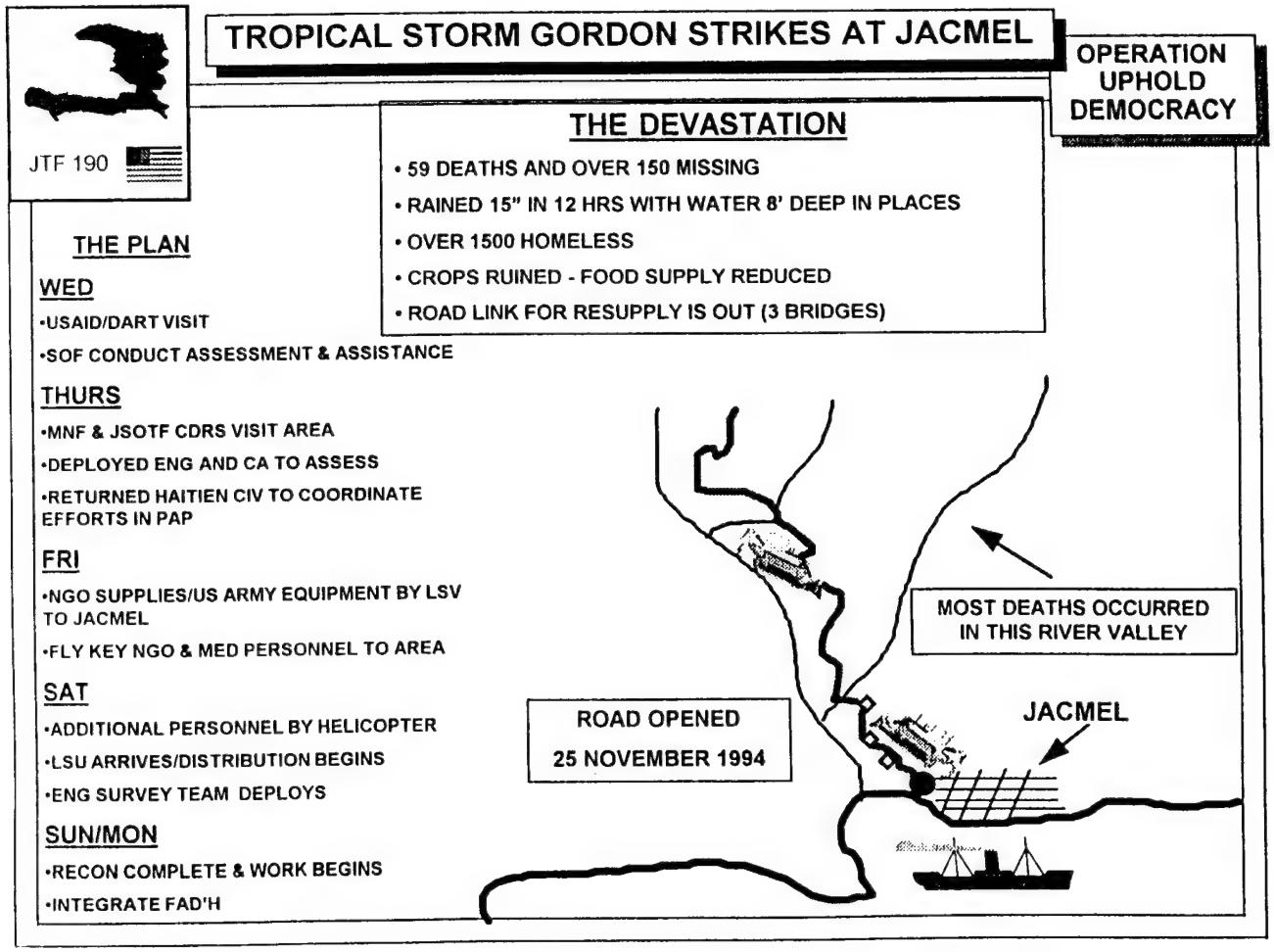


Figure 4. Source: [Colonel Jonathan S. Thompson, TFCASTLE Commander] AAR briefing to Brigadier General Close [at Fort Bragg, NC] on 2 March 1995: n.p. [26].



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